**UNIVERSIDADE VILA VELHA – ES**

**PROGRAMA DE PÓS-GRADUAÇÃO EM ECOLOGIA DE ECOSSISTEMAS**

# ANTIPREDATOR MECHANISMS OF POST-METAMORPHIC ANURANS

**CÁSSIO ZOCCA ZANDOMENICO**

**VILA VELHA – ES**

**FEVEREIRO / 2019**

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Dissertação apresentada a Universidade Vila Velha, como pré-requisito do Programa de Pós-graduação em Ecologia de Ecossistemas, para a obtenção do grau de Mestre em Ecologia.

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Catalogação na publicação elaborada pela Biblioteca Central / UVV-ES

Z84m Zocca, Cássio.
Antipredator mechanisms of post-metamorphic anurans / Cássio Zocca. – 2019.
46 f. : il.

Orientador: Rodrigo Barbosa Ferreira.
Coorientador: Charles Gladstone Duca Soares
Dissertação (Mestrado em Ecologia de Ecossistemas) - Universidade Vila Velha, 2019.
Inclui bibliografias.

1. Ecologia. 2. Animais defesa. 3. Comportamento - Evolução. I. Ferreira, Rodrigo Barbosa. II. Soares, Charles Gladstone Duca. III. Universidade Vila Velha. IV. Título.

CDD 577

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Aprovado em 27 de fevereiro de 2019,

**Banca Examinadora:**

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Prof. Dr. João Filipe Riva Tonini (Harvard University)

Prof. Dr. Rodrigo Barbosa Ferreira (UVV)
(Orientador)

*Dedico esta pesquisa a minha família pelo apoio e por tudo o que representam para mim. Ao meu filho Heitor Delai Zocca Zandomenico pela força, amor e motivação transmitida e pelos momentos de alegria a cada volta para casa. À minha esposa Larissa Delai Zocca por estar sempre ao meu lado, me apoiando e incentivando para a conclusão desta etapa de desafios e aprendizado.*

## AGRADECIMENTOS

Ao professor Dr. Rodrigo Barbosa Ferreira por me orientar, e por ter pacientemente me acolhido. Ao professor Dr. Charles Gladstone Duca Soares por aceitar me co-orientar e por abrir as portas em seu laboratório (LEPC). Ao Dr. Pedro Diniz pela parceria e suporte para realização das análises estatísticas. Agradeço por todo apoio na construção, execução e finalização deste trabalho. Ao Laboratório de Ecologia da Herpetofauna Neotropical (LEHN), e aos meus amigos e colegas. Aos demais colegas do Programa de Pós-Graduação em Ecologia de Ecossistemas pelo companheirismo, em especial aos amigos Flávio Curbani, Hilton Entringer e Karina Santos pelo apoio na disciplina de metodologia de campo, e por todos os ensinamentos e paciência durante as análises estatísticas. Agradeço aos professores Dr. João Filipe Riva Tonini, Dr. Raphael Mariano Macieira, Dr. Marcelo da Silva Moretti, Dr. Mário Garbin, Dr. Levy de Carvalho Gomes, Dra. Ana Carolina Srbek Araújo, Dra. Cecília Waichert Monteiro e Dr. Walace Pandolpho Kiffer Jr. do Programa de Ecologia de Ecossistemas pelo aprendizado, conselhos e amizade. Sou grato pelas parcerias estabelecidas durante o curso e pelo apoio de todos. À Coordenação de Aperfeiçoamento de Pessoal de Nível Superior pela concessão da bolsa de estudos (CAPES 001/1700071). À minha família pelo apoio durante minha jornada acadêmica. Ao Projeto Bromeligenous por ter me acolhido e por todo suporte para a realização deste trabalho. Aos meus pais Ronaldo Zandomenico (in memoriam) e Jandyra Zocca Zandomenico pelos ensinamentos, exemplos de coragem, perseverança, caráter, dedicação e paciência. Ao saudoso Prof. Dr. Rogério Luiz Teixeira (in memoriam) pelos ensinamentos, mesmo que breves, na área da herpetologia. Obrigado!

*Difícil não é lutar por aquilo que deseja,*

*e sim desistir daquilo que se ama.*

***Bob Marley***

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A predação tem consequências na aptidão dos organismos, onde muitos mecanismos antipredador evoluíram para evitar ou repelir predadores, sendo exibida uma diversidade de colorações e formas. Presas podem reconhecer seus predadores, podendo responder distintamente entre indivíduos, espécies, gêneros e famílias. Mecanismos antipredador de anfíbios anuros são amplamente estudados, no entanto, a literatura é dispersa e descritiva devido à natureza oportunista das observações. Um banco de dados que compila essas informações pode favorecer a produção de estudos macroecológicos sobre a interação de predador-presa. Produzimos um banco de dados sobre mecanismos antipredador de anuros pós-metamórficos (juvenis e adultos) em escala global. Esse banco de dados contém informações sobre mecanismos antipredador para 650 espécies e 39 famílias. Mecanismos antipredador foram exibidos de forma distinta pelas espécies, gêneros e famílias de anuros. O número de publicações em mecanismos antipredador aumentou substancialmente após o ano 2000. Com base nesse banco de dados, avaliamos se atributos funcionais de anuros como tamanho corporal, período de atividade, hábito e o tipo de habitat podem influenciar a diversidade de mecanismos antipredador. Os atributos funcionais habitat, tamanho corporal e período de atividade explicaram 85% da diversidade de mecanismos antipredador. Nosso banco de dados combinado com medidas quantitativas de atributos morfológicos e ecológicos pode ampliar o conhecimento sobre macroecologia evolutiva.

**Palavras-chave:** Anura, ecologia experimental, interação predador-presa.

**ABSTRACT**

ZOCCA, CÁSSIO, M.Sc Universidade Vila Velha – ES, fevereiro de 2019. **ANTIPREDATOR MECHANISMS OF POST-METAMORPHIC ANURANS**. Orientador: Rodrigo Barbosa Ferreira. Co-orientador: Charles Gladstone Duca Soares.

Predation has consequences on organisms’ fitness. Many antipredator mechanisms have evolved to avoid or repel predators, including morphological, physiological and behavioral adaptations. Prey can recognize their predators and can respond differently between individuals, species, genera and families. Anurans antipredator mechanisms are widely studied, but the literature is scattered and descriptive due to the opportunistic nature of fieldwork observations. A database that compiles this information may favor the production of macroecological studies on predator-prey interaction. We produced a database on antipredator mechanisms of post-metamorphic anurans (juveniles and adults) on a global scale. This database contains information on antipredator mechanisms for 650 species and 39 families. Antipredator mechanisms were exhibited differently by species, genera and families of anurans. The number of publications on antipredator mechanisms increased substantially after the year 2000. Based on this database, we evaluated whether functional attributes of anurans such as body size, activity period, habit, and habitat type may influence the diversity of antipredator mechanisms. The functional attributes habitat, body size and activity period explained 85% of the diversity of antipredator mechanisms. Our database combined with quantitative measures of morphological and ecological attributes can broaden our understanding of evolutionary macroecology.

**Keywords:** Anura, experimental ecology, predator-prey interaction.

## JUSTIFICATIVA

Atributos funcionais representam diferentes estratégias que evoluíram para maximizar a aptidão individual (Vitt 2013; Mesquita et al. 2015). Anfíbios anuros desenvolveram diversos mecanismos antipredador para aumentar as chances de sobrevivência contra uma diversidade de predadores (Toledo et al. 2007), sendo esta provavelmente a diversidade de mecanismos antipredador mais complexa entre o grupo dos vertebrados terrestres (Toledo et al. 2011; Apêndice 1).

A compilação de dados é crucial para o avanço de várias áreas de pesquisa (Mesquita et al. 2015), no entanto, poucos estudos compilaram extensivamente dados sobre mecanismos antipredador (Williams et al. 2000; Toledo et al. 2011) compreendendo mais de uma espécie de anfíbio anuro. A literatura sobre o tema é dispersa, muitas vezes publicadas como notas curtas devido às observações esporádicas realizadas principalmente durante a amostragem de anuros para outros fins e focadas em espécies únicas (Toledo et al. 2005; Ferreira et al. 2013). Assim, torna-se necessária uma compilação dos dados disponíveis sobre o mecanismo antipredador de anuros. Até o momento, apenas duas revisões de mecanismos antipredador de anuros foram publicadas (ver Dodd 1976; Toledo et al. 2011). Dodd (1976) forneceu uma bibliografia de estudos, onde são reportados 22 tipos de mecanismos antipredador. Toledo et al. (2011) listou 30 tipos de mecanismos antipredador e forneceu uma breve descrição de cada um deles. Apesar desses avanços científicos, estudos sobre mecanismos antipredador em anuros carecem de: i) um compreensivo e detalhado esquema de classificação, ii) um banco de dados em escala global, e iii) abordagem sobre distribuição geográfica, filogenética e taxonômica. Um sistema de classificação e um banco de dados em escala global sobre mecanismo antipredador facilitaria e promoveria progresso nos estudos focados em interação predador-presa de anuros.

Anfíbios anuros pós-metamórficos respondem à manipulação experimental, fornecendo um excelente modelo para este tipo de estudo. Inúmeros fatores podem influenciar a diversidade dos mecanismos antipredador, no entanto, atributos funcionais são muitas vezes diferentes entre as espécies, fazendo com que as interpretações da variação dos mecanismos entre e dentre taxons seja dificultada. No entanto, é provável que alguns atributos funcionais sejam mais eficientes do que outros, podendo ser mais úteis na construção de modelos gerais da diversidade de mecanismos antipredador.

Os atributos funcionais das espécies podem determinar ou direcionar espécies a exibir uma determinada diversidade de mecanismos antipredador. Assim, mecanismos antipredador em anuros podem ter origens ecológicas ou puramente filogenéticas, selecionados pela seleção natural, ou através do aprendizado em resposta aos predadores no passado. Nossos resultados fornecem novas perspectivas sobre os mecanismos antipredador de anfíbios anuros.

## OBJETIVOS

Elaboramos um banco de dados sobre mecanismos antipredador de anfíbios anuros em escala global. Descrevemos as características e padrões encontrados nesse banco de dados. Avaliamos se a diversidade de mecanismos antipredador em anuros é predita por seus atributos funcionais como tamanho corporal, período de atividade, hábito e habitat.

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# CAPÍTULO I

*Capítulo publicado na revista Behavioral Ecology and Sociobiology* (0340-5443)

## ANTIPREDATOR MECHANISMS OF POST-METAMORPHIC ANURANS: A GLOBAL DATABASE AND CHARACTERIZATION

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ZOCCA, CÁSSIO, M.Sc Universidade Vila Velha – ES, fevereiro de 2019. **ANTIPREDATOR MECHANISMS OF POST-METAMORPHIC ANURANS: A GLOBAL DATABASE AND CHARACTERIZATION**. Orientador: Rodrigo Barbosa Ferreira. Co-orientador: Charles Gladstone Duca Soares.


## RESUMO

A literatura sobre mecanismos antipredador de anuros é amplamente dispersa e descritiva devido à natureza oportunista das observações. Fornecemos um banco de dados em escala global sobre mecanismos antipredador de anuros pós-metamórficos. Nosso banco de dados é composto por 650 espécies de anuros pós-metamórficos, em 180 gêneros e 39 famílias. Indivíduos de 159 (24%) espécies apresentaram mais de um mecanismo antipredador além de imobilidade ou fuga. Indivíduos de 466 (72%) espécies exibiram postura. Inflação corporal foi a postura mais exibida, seguida de fingir de morto e contração. *Boana faber* e *Odontophrynus americanus* apresentaram 10 mecanismos antipredador. Calyptocephalellidae (média= 9), Dicroglossidae (média= 8), Alsodidae (média= 7) e Odontophrynidae (média= 7) tiveram a maior média de mecanismos antipredador entre as famílias. O número de publicações sobre mecanismos antipredador aumentou substancialmente após o ano 2000. Este banco de dados combinado com medidas quantitativas de atributos morfológicos e ecológicos é valioso para o avanço do conhecimento sobre macroecologia evolutiva, porque a história de vida representa diferentes estratégias que evoluíram para maximizar a aptidão individual. Esperamos despertar um interesse renovado em mecanismos antipredador de anuros pós-metamórficos para entender melhor a evolução das interações predador-presa.



**Palavras-Chave**: macroecologia, integração de dados, herpetologia, Anura, comportamento, atributos funcionais.

ZOCCA, CÁSSIO, M.Sc Universidade Vila Velha – ES, fevereiro de 2019. **ANTIPREDATOR MECHANISMS OF POST-METAMORPHIC ANURANS: A GLOBAL DATABASE AND CHARACTERIZATION**. Orientador: Rodrigo Barbosa Ferreira. Co-orientador: Charles Gladstone Duca Soares.

## ABSTRACT

The literature on anuran antipredator mechanisms is largely scattered and descriptive due to the opportunistic nature of the observations. We provide a global database of antipredator mechanisms of post-metamorphic anurans. The database comprises 650 post-metamorphic anuran species within 180 genera and 39 families. The records from the Neotropical region represent 462 (71%) species. Individuals of 159 (24%) species displayed at least one behavior other than immobility or escape, of which 466 (72%) displayed defensive posture. Body inflation was the most displayed posture followed by death feigning and contraction. *Boana faber* and *Odontophrynus americanus* displayed 10 antipredador mechanisms. Calyptocephalellidae (mean= 9), Dicroglossidae (mean= 8), Alsodidae (mean= 7) and Odontophrynidae (mean= 7) had the highest mean of antipredator mechanisms across families. The number of publications on antipredator mechanisms increased substantially after the year 2000. This database combined with quantitative measurements of morphological and ecological traits is valuable to the advancement of knowledge on evolutionary and macroecology because life history represents different strategies that evolved to maximize individual fitness. We hope to spark a renewed interest on antipredator mechanisms of post-metamorphic anurans to understand further the evolution of predator-prey interactions.

**Keywords:** macroecology, data integration, herpetology, Anura, behavior, functional attributes.

# INTRODUCTION

Life history traits represent different strategies that evolved to maximize individual fitness (Vitt 2013; Mesquita et al. 2015). Gathering data on life history traits is crucial for the advancement of several research areas (Mesquita et al. 2015). For instance, Darwin's theory of evolution by natural selection was based on studies of the natural history of organisms (Vitt 2013). Anurans, for example, have evolved many antipredator mechanisms to enhance their chances for survival against a diversity of predators, such as spiders, crabs, insects, and vertebrates (Toledo et al. 2007). The diversity of antipredator mechanisms in anurans is probably more complex than that of any other terrestrial vertebrate group (Toledo et al. 2011; Ferreira et al. 2019). These mechanisms include morphological, behavioral, and/or physiological characteristics that go from immobility to flee (Toledo et al. 2011).

In contrast to the wide variety of antipredator mechanisms in anurans (Appendix 1), few extensive studies comprising more than one species have been published (Williams et al. 2000; Toledo et al. 2011). This scenario diverges from other amphibians, such as the widely studied salamanders and newts (Dodd and Brodie Jr. 1976; Brodie Jr. 1977). Despite receiving little attention, several authors have suggested that behavior may lead the way in adaptation or that behavior acts as a kind of pacemaker for the rate at which evolution occurs (Brodie Jr. 1977; Jared et al. 2009).

The interest by herpetologists fascinated by life history of amphibians has resulted in an astonishing number of available databases about natural history traits (e.g., Jones et al. 2009; Madin et al. 2016), allowing large-scale approaches in ecology and evolution (Safi et al. 2013; Oliveira et al. 2016). However, such data are still scarce for many amphibian species (Michaels et al. 2014; Catenazzi 2015), as well as data on antipredator mechanisms.

There are scattered studies on antipredator mechanisms throughout the literature, often published as short notes due to the sporadic observations mostly done during frog sampling for other purposes and focused on single species (Toledo et al. 2005; Ferreira et al. 2013). Thus, it is highly needed a compilation of the available data on antipredator mechanisms of anurans, which may contribute to the knowledge about the diversity, characteristics and patterns of antipredator mechanisms for families, genus and species, in addition to zoogeographic patterns. To date, there have been only two reviews of anuran antipredator mechanisms (see Dodd 1976; Toledo et al.

2011). Dodd (1976) listed a bibliography of studies on the theme, reporting 22 types of antipredator mechanisms. Toledo et al. (2011) listed 31 types of antipredator mechanisms and provided a brief description of each one. However, most of the work on anti-predator mechanisms evaluated low numbers of species.

In the present study, we compiled and databased most records on antipredator mechanisms elicited from anurans occurring in the world. For this, we gathered our own data from field research, compiled published literature, and consulted herpetologists for unreported observations. We believe that the characterization of antipredator mechanisms provides unique opportunity to further investigate ecological, evolutionary and phylogenetic questions regarding antipredator mechanisms in anuran, especially if combined with quantitative measurements of morphological and ecological traits, as well as patterns related to the zoogeographic distribution of the mechanisms and publications throughout the years. In addition, we provide a general overview of geographic and taxonomic patterns found in the database.

## MATERIAL AND METHODS

We compiled a global database of antipredator mechanisms for post-metamorphic anurans (Appendix I) based on a literature survey, our own fieldwork, and consultation with colleagues. We conducted an extensive literature survey of antipredator mechanisms for post-metamorphic anurans in the following databases: Brill online books and journal, Google Scholar, Scientific Electronic Library Online (SciELO), Scopus, Taylor and Francis Library Online, and Web of Science. In all cases, we used the following keywords: antipredator mechanism, antipredator behavior, defensive behavior, and defensive strategy combined with either frog or anuran. We searched the major herpetological journals often used to publish on this topic such as Amphibia-Reptilia, Journal of Herpetology, Herpetologica, Herpetological Review and Herpetology Notes. In addition, we consulted original cross-references before adding them to the database as an extra data checking step.

We also used observations on antipredator mechanism from fieldwork since 1970 at many locations in most zoogeographic regions (i.e., Australian, Afrotropical, Neotropical, Neartic, Palaeartic, and Oriental) and our most recently fieldwork in the Neotropics from Atlantic forest. We used focal animal sampling (Altmann 1974) and simulated predator attack by using finger-only stimuli and multiple stimuli (see Lourenço-de-Moraes et al. 2016). We tested anurans under both field and laboratory conditions. In addition, we gathered information on field notes yet unpublished from many colleagues willing to share observations on antipredator mechanisms of anurans. The records of species without precise taxonomic identification at the species-level (i.e., aff., cf., and gr.) were removed from the database. Classification of anuran's antipredator mechanisms follows Ferreira et al. (2019). Taxonomic classification follows Frost (2019).

## RESULTS

We compiled a global database comprising 2953 records on antipredator mechanisms of 650 post-metamorphic anuran species within 180 (40%) genera and 39 (70%) families. Hylidae had the highest number of species (N= 151; 23%) in the database. Out of 650 species, 147 (23%) were recorded from more than one data source (i.e., literature, colleagues or fieldwork). From exclusively one data source, literature provided data for 433 species (67%), colleagues for 40 (6%) species, and our fieldwork for 30 (5%) species.

The number of publications on antipredator mechanisms increased substantially after the year 2000 (Figure 1). The records from the Neotropical region represent 462 (71%) species, followed by 56 (9%) species from Australian region, 46 (7%) species from Neartic region, 42 (6%) species from Oriental region, 30 (5%) species from Afrotropical region, and 17 (2%) species from Palaeartic region. Three (0.5%) species (*Bombina maxima*, *Hypopachus variolosus* and *Lithobates catesbeianus)* were recorded from more than one zoogeographic region. The database has records from 52 countries, of which Brazil has most records (N= 368 species; 57%), followed by Australia (N= 51 species; 8%) and the United States (N= 41 species; 6%).

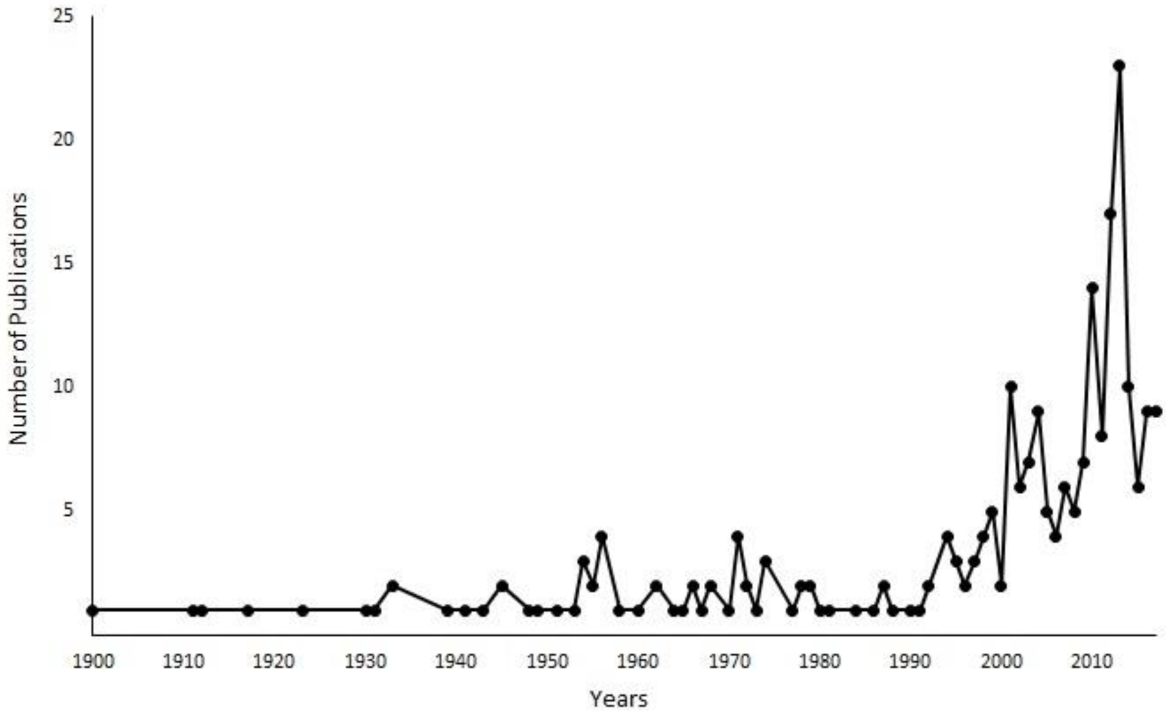


**Figure 1.** Historical number of publications on antipredator mechanisms of anurans.

Regarding the phases (i.e. avoid detection, prevent attack and counterattack) of antipredator mechanisms, 620 (95%) species exhibited avoided detection, 585 (90%) species exhibited prevent attack, and 404 (62%) species exhibited fight. Individuals of 402 (62%) species exhibited at least one behavior other than immobility or escape. Individuals of 617 (95%) species displayed camouflage (Background matching and Disruptive; Figure 2A, B), followed by 466 (72%) species that displayed some type of posture, and 305 (47%) displayed secretion. Interrupt calling (N= 10 species; 2%) and charge (N= 8 species; 1%) were the rarest displayed mechanism (Table 1).

**Table 1.** Antipredator mechanisms of post-metamorphic anurans by families, genera and species.

| Phases | Antipredator mechanisms | Variations | Family | Genus | Species |
|---|---|---|---|---|---|
| **Avoid detection** | **1. Camouflage** | **a. Background matching** | 39 (100%) | 171 (95%) | 585 (90%) |
| | | **b. Disruptive** | 8 (21%) | 14 (8%) | 32 (5%) |
| | **2. Immobility** | **-** | 22 (61%) | 73 (41%) | 159 (25%) |
| | **3. Interrupt calling** | **-** | 5 (14%) | 10 (6%) | 10 (2%) |
| **Prevent attack** | **4. Aposematism** | **a. Exposed** | 8 (22%) | 14 (8%) | 37 (6%) |
| | | **b. Hidden** | 21 (58%) | 92 (51%) | 244 (38%) |
| | **5. Charge** | **-** | 5 (14%) | 6 (3%) | 8 (1%) |
| | **6. Posture** | **a. Body elevation** | 18 (50%) | 36 (20%) | 54 (8%) |
| | | **b. Body inflation** | 28 (78%) | 95 (53%) | 216 (33%) |
| | | **c. Contraction** | 17 (47%) | 64 (36%) | 149 (23%) |
| | | **d. Glands exposure** | 11 (31%) | 25 (14%) | 55 (8%) |
| | | **e. Limbs interweave** | 4 (11%) | 6 (3%) | 6 (1%) |
| | | **f. Mouth gape** | 16 (44%) | 31 (17%) | 60 (9%) |
| | | **g. Rear elevation** | 16 (44%) | 41 (23%) | 71 (11%) |
| | | **h. Stretching limbs** | 7 (19%) | 26 (14%) | 39 (6%) |
| | | **i. Death feigning** | 23 (64%) | 79 (44%) | 203 (31%) |
| | | **j. Unken reflex** | 13 (36%) | 22 (12%) | 41 (6%) |
| | **7. Escape** | **a. Climb** | 2 (6%) | 6 (3%) | 10 (2%) |
| | | **b. Glide** | 1 (3%) | 1 (1%) | 3 (1%) |
| | | **c. Hide** | 17 (47%) | 38 (21%) | 61 (9%) |
| | | **d. Jump away** | 23 (64%) | 89 (49%) | 219 (34%) |
| | | **e. Roll** | 1 (3%) | 1 (1%) | 3 (1%) |
| | | **f. Swim** | 10 (28%) | 17 (9%) | 22 (3%) |
| | **8. Warning sound** | **-** | 13 (36%) | 16 (9%) | 26 (4%) |
| **Counterattack** | **9. Cloacal discharge** | **-** | 15 (42%) | 33 (18%) | 71 (11%) |
| | **10.Secretion** | **a. Adhesive** | 6 (17%) | 18 (10%) | 23 (4%) |
| | | **b. Odoriferous** | 12 (33%) | 29 (16%) | 102 (16%) |
| | | **c. Slippery** | 7 (19%) | 15 (8%) | 36 (6%) |
| | | **d. Poisonous** | 25 (64%) | 74 (41%) | 198 (30%) |
| | **11. Aggression** | **a. Bite** | 12 (33%) | 16 (9%) | 30 (5%) |
| | | **b. Headbutt** | 6 (17%) | 8 (4%) | 10 (2%) |
| | | **c. Kick** | 13 (36%) | 30 (17%) | 54 (8%) |
| | | **d. Puncture** | 4 (11%) | 8 (4%) | 17 (3%) |
| | **12. Distress call** | **-** | 16 (44%) | 38 (21%) | 99 (15%) |

Regarding postures, the variations body inflation (N= 216 species; 33%; Figure 2C) and death feigning (N= 203 species; 31%; Figure 2D) were the most displayed, followed by contraction (N= 149 species; 23%; Figure 2E). The postures limbs interweave (N= 6 species; 1%; Figure 2F) was the rarest displayed. Regarding secretion (Figure 2G, H), poisonous substance was the most produced (N= 198 species; 30%), followed by odoriferous (N= 102 species; 16%), slippery (N= 36 species; 6%), and adhesive (N= 23 species; 4%) substances. Regarding escape, the variation jump away (N= 219 species; 34%) was the most displayed, followed by hide (N= 61 species; 9%), swim (N= 22 species; 3%) and climb (N= 10 species; 2%). The variations glide and roll (N= 3 species; 1%) were the rarest displayed. Distress call was displayed by 99 (15%) species as defensive mechanism (Table 1).

Regarding species, *Boana faber, Leptodactylus latrans* and *Odontophrynus americanus* (Figure 3A, B, C) displayed the highest number of antipredator mechanism (N= 10). Regarding genera, *Myersiella* (mean= 9), *Limnonectes* (mean= 6) and *Haddadus* (mean= 8) had the highest mean of antipredator mechanisms. Regarding families, Calyptocephalellidae (mean= 9), Dicroglossidae (mean= 8), Alsodidae (mean= 7) and Odontophrynidae (mean= 7) had the highest mean number of antipredator mechanisms across families. Ceratobatrachidae (mean= 2) had the lowest mean of antipredator mechanism across families.

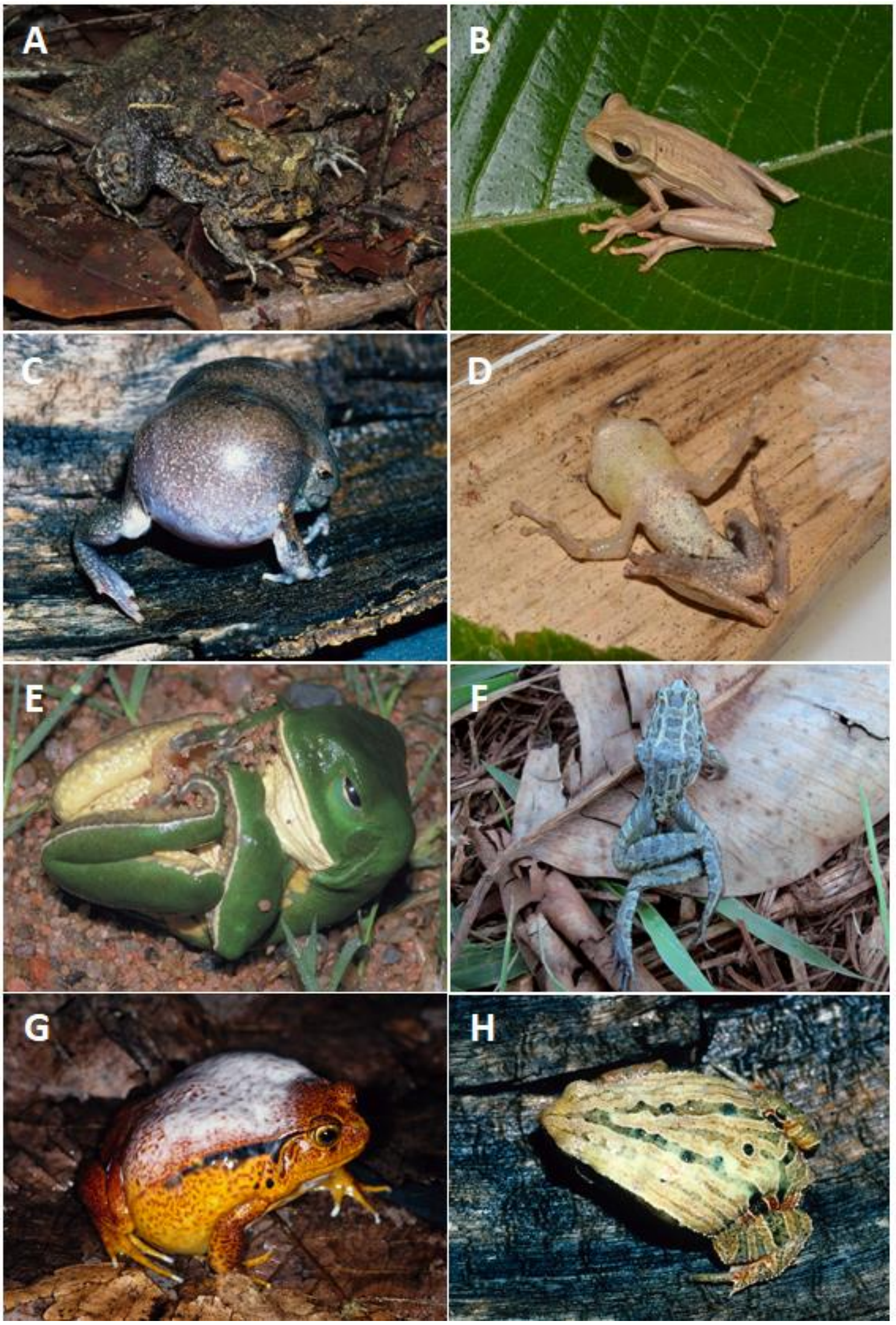


**Figure 2.** Camouflage - (A) Background matching: *Odontophrynus cultripes* with a variety of warts and tubers to resemble rocks or fallen leaves; (B) Disruptive: *Boana polytaenia* has contrasting marks that break the appearance of body shape; Postures - (C) Body inflation: *Glyptoglossus molossus* inflating the body; (D) Death feigning: *Ololygon albicans* with loose limbs and back on the substrate; (E) Contraction: *Phyllomedusa tetraploidea* contracting the body and limbs; (F) Limbs interweave: *Leptodactylus chaquensis* interlacing the hind limbs; (G, H) Secretion: *Dyscophus guineti* and *Kalophrynus pleurostigma* secreting skin substances. Photos: C.Z. Zocca (A, B, D), E.D. Brodie (C, G, H), C. Borteiro (E), R. Lourenço-de-Moraes (F).

**Figure 3.** (A) *Boana faber* (Hylidae), (B) *Leptodactylus latrans* (Leptodactylidae) and (C) *Odontophrynus americanus* (Odontophrynidae) displayed the highest number of antipredator mechanisms. Photos: C.Z. Zocca (A, B) and L.S. Machado (C).

## DISCUSSION

Our database is the first comprehensive compilation on antipredator mechanisms of post-metamorphic anurans at global scale. Our database includes records of antipredator mechanism for approximately 10% of the anuran species listed for the world (sensu Frost 2019). The remarkable work done by some researchers in the previous decades (e.g., C. Jared, C. Haddad, L.F. Toledo and collaborators) may explain the increase in the number of publications on antipredator mechanisms of anurans through time. The anurans from Neotropical region, especially from Brazil's Atlantic Forest are the most studied on this topic. Probably recent investment in the number of herpetologist researchers, pressure of publication in Brazilian universities, and species diversity in this region have been the reason for the substantial increase in the number of publications on antipredator mechanisms. The number of records increased considerably after Toledo et al. (2011) compiled their observations on antipredator mechanism for species from Atlantic Forest.

Assuming they are consumed by visual species, the phase avoid detection was the most adopted showing that species use this strategy as the first defensive line, reducing the probability of successful predation when prey occupy the same foraging microhabitat and are within the perceptual field of predators (see Brodie Jr. et al. 1991). The second most displayed defensive phase prevent attack are responsible for warning predators to keep away and avoid direct contact. At this phase, the anuran is on the capture distance from the predator, which might be less expensive. The phase fight are responses to apprehension by the predator, and the prey tries to escape through physical contact (Appendix 1). Due to characteristics of the displayed on avoid detection phase, it is possible that the species are directed to show mechanisms like camouflage as the first defensive strategy, probably due to the low energy expenditure and stress in relation to the mechanisms exhibited during the phase of prevent attack and counterattack.

Camouflage is largely the most used antipredator mechanism. Most records camouflage was used in synergy with immobility to further increase the advantage of resemble the substrate. Immobility may also be important as the precursor of postures, including positioning of the body that might enhance prey chance of surviving during interaction with predator. It is hypothesized that the sudden change of shape, position and location of the potential prey could startle and disorienting pursuing predators (Brodie Jr. 1977).

The most displayed postures were body inflation, death feigning and contraction. Body inflation is widely spread across several terrestrial taxa, characterized by the anuran inflating itself. This deceptive posture makes gripping prey more difficult, it may fool the predator into assessing the prey is too large to handle and ingest, or both (Caro 2014). Some species inside cavities (e.g., burrows, bromeliads, crevices) may also inflate the body to avoid being extracted (Toledo et al. 2011). Death feigning is also a strategy used by some species where the anuran usually coats the dorsum, with the hind limbs loose on the substrate, resembling a dead organism (Appendix 1). During death feigning exhibit, anurans the show bright coloration on the exposed venter or members, which serve as an aposematic cue to predators (Brodie 1977). Contraction is characterized by contraction of the four limbs, arching of the body and usually with the head ventrally flexed. Contraction may to facilitate the release of skin secretions, in addition cause prey to be difficult to swallow, or create the resemblance of a dead organism (Appendix 1). While contracting, most species remain motionless, protecting vital areas of the body and, consequently, avoid more serious wounds (Sazima 1974). *Rana rugosa* decreased the likelihood of being preyed upon by a snake through the crouch, possibly due to the release of skin secretion (Choi et al. 1999).

Our results show that 305 (47%) species released skin secretion during stimuli of predation. These secretions varied from odoriferous to highly toxic. Poisonous was the most released skin substance which can be either released passively or actively (see Mailho-Fontana et al. 2014). Most species passively release secretions after being apprehended by a predator. Some species (e.g., *Corythomantis greeningi* and *Aparasphenodon brunoi*) have active release mechanisms through bony spines on the skull that pierce the skin in areas with concentrations of skin glands (Jared et al. 2015). Some bufonids display contraction and body inflation to release secretions and also direct glands toward the predators (Toledo and Jared 1995; Jared et al. 2009). Poisonous skin secretion is the main antipredatory strategy of anurans to avoid predation (Jared et al. 2015).

Regarding escape, jump away was the most used (N= 219 species; 34%). Jump away is the saltatorial locomotion for escaping predators, and is especially effective to increase distance from predators that depend on chemosensory cues for trailing prey (Duellman and Trueb 1994). For example, some *Eleutherodactylus* display a single, long leap and subsequent immobility with the anuran relying on the camouflage to avoid subsequent discovery (i.e., evade). Some small species (e.g., *Eleutherodactylus planirostris* and *Adelophryne glandulata*) display a series of quick, short, and multidirecional hops and subsequent immobility (i.e., flee) (Appendix 1).

Defensive vocalization was emitted by many species (N= 125 species; 19%). Most calls from our observations (N= 99 species; 15%) can be categorized as distress call (sensu Toledo et al. 2014) because frog emitted the call when was handled by observer. This mechanism is intended to avoid predation by scaring the predator, and also to attract other potential predators (Brodie and Formanowicz 1981; Toledo et al. 2014). *Gastrotheca megacephala* emitted a distress call when was apprehended and was possibly interpreted by the other conspecifics as alarm because they all stopped calling for about 15 minutes (Lourenço-de-Moraes et al. 2016). We believe distress call is difficult to be determined because it depends of the response from conspecifics. In only 26 occasions (4%), we observed warning sound that serves to warn a potential predator. This call is also likely difficult to be determined because most observers do not threaten the frog before capture.

It is noteworthy that the three species that displayed the highest number of mechanisms (i.e., *B. faber*, *L. latrans*, and *O. americanus*) have wide geographic distribution. We speculate that the advantage of displaying a large spectrum of antipredator mechanism may be associated to the wide distribution range. It may suggest that antipredator mechanism is an evolutionary pressure at the population level. The many antipredator mechanisms displayed by these frogs appear to interact and the total protection may be greater than the sum of each of the behaviors alone. It seems that an individual can switch mechanism depending of the threat. For instance, *Gastrotheca megacephala* and *G. recava* displayed escalating antipredator mechanism according to the degree of stress imposed by the potential predator (see Lourenço-de-Moraes et al. 2016). Because predation involves several phases such as locate identify, approach, subjugate, ingest, and digest prey (Mailho-Fontana et al. 2014), the more types of antipredator mechanisms, the more likely this species may escape from predators. We suggest future studies should evaluate the difference on the number of antipredator mechanisms across families considering we found certain families displaying many more mechanisms and others few mechanisms.

Our database shows that antipredator mechanisms such as defensive postures, aposematic color patterns and defensive vocalizations act synergistically with other mechanisms. Some defensive postures exhibited by bufonids (e.g., *Rhinella crucifer*, pers. obs.) act synergistically with skin secretion. Toledo et al. (2011) reported that 80% of the species displaying contraction also released skin secretions. Lourenço-de-Moraes et al. (2014) reported *Leptodactylus chaquensis* displaying death feigning in synergy with poisonous secretions. Many species displaying body elevation have aposematic colors warning the predator about its toxicity.

Interpopulation variation of antipredator mechanisms was observed for many species during our field research. This variation may indicate antipredator mechanism is a plastic life history trait that may be a response to local predator pressures. This variation may also indicate that antipredator mechanism is probably not a good taxonomic character. Furthermore, antipredator mechanism does appear to be phylogenetically related because most mechanisms were displayed by species from different families. These cases of convergences point out the selective advantage of these mechanisms and further cautions against the use of defensive mechanisms in taxonomy. We believe our database provides a unique opportunity to further investigate ecological and evolutionary questions regarding antipredator mechanisms in anurans, especially if combined with quantitative measurements of morphological and ecological traits.

## CONCLUSION

In this chapter, we compiled of database of records on mechanisms antipredator of post-metamorphic anurans in global scale. The 2953 records represent 650 species, and include 39 families and 180 genera of anurans post-metamorphic. Individuals of most species in our observations remained motionless before displaying a posture or any other behavior. Camouflage and immobility are mechanisms to avoid observation or detection by a visually oriented predator. Immobility has presumably further advantage in anurans that exhibit skin secretion. Our results show that the ability of producing poisonous secretion is exhibited by several species (N= 198) and families (N= 25) of anurans. Immobility may also be the precursor of defensive postures. Such postures include any positioning of the body that might enhance prey chance of surviving during interaction with predator. Death feigning was the most common type of posture (N= 203 species) displayed by the studied anurans. Defensive vocalizations were often emitted by many species. Most vocalizations from observations can be categorized as distress call (N= 99 species) because frog emitted the call when was handled by observer. Interpopulation variation of antipredator behaviors was observed for many species during our field researches. It is noteworthy that the three species that displayed the highest number of mechanisms (i.e. *Boana faber*, *Leptodactylus latrans* and *Odontophrynus americanus*) have large distribution across Atlantic Forest. We speculate that the advantage of displaying a large diversity of mechanisms antipredator may be associated with greater success against predators and distribution range. Our database includes records of antipredator mechanism for approximately 10% of the species listed for world.

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# CAPÍTULO II

*Submetido na revista Behavioral Ecology and Sociobiology* (0340-5443)

# ATRIBUTOS FUNCIONAIS PREDIZEM A DIVERSIDADE DE MECANISMOS ANTIPREDADOR DE ANUROS PÓS-METAMÓRFICOS

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ZOCCA, CÁSSIO, M.Sc Universidade Vila Velha – ES, fevereiro de 2019. **ATRIBUTOS FUNCIONAIS PREDIZEM A DIVERSIDADE DE MECANISMOS**

**ANTIPREDADOR DE ANUROS PÓS-METAMÓRFICOS**. Orientador: Rodrigo Barbosa Ferreira. Co-orientador: Charles Gladstone Duca Soares.


## RESUMO

Animais evoluíram uma diversidade de mecanismos antipredador para evitar reconhecimento, aproximação ou predação, que pode ser resultado da pressão seletiva imposta pelos predadores, combinada com os atributos funcionais das presas. Neste estudo avaliamos se a diversidade de mecanismos antipredador em anuros é predita por seus atributos funcionais, sob a hipótese de que a diversidade de mecanismos antipredador de anuros é predita pelo seu período de atividade, tamanho corporal, habitat e hábito. Utilizamos um banco de dados de escala global sobre mecanismos antipredador contendo 650 espécies de anuros pós-metamórficos. Para as análises utilizamos um subconjunto de espécies (N= 430) que continham informações completas sobre os atributos escolhidos. Realizamos análises estatísticas baseadas nas espécies que apresentaram diversidade igual ou superior a dois mecanismos antipredador. Nossos resultados mostram que a diversidade de mecanismos antipredador está relacionada aos atributos funcionais das espécies de anuros. Dois modelos foram os melhores para explicar a diversidade de mecanismos antipredador em anuros. Nosso estudo revela relações entre mecanismos antipredador e atributos funcionais de anfíbios anuros pós-metamórficos e sugere que a diversidade de mecanismos antipredador é determinada pela história de vida das espécies. Concluímos que a diversidade de mecanismos antipredador foi maior em espécies maiores, generalistas, florestais e noturnas, onde o tamanho do corpo, o habitat e o período de atividade se mostraram são importantes preditores da diversidade de mecanismos em anuros pós-metamórficos.



**Palavras-chave:** adaptação, ecologia funcional, defesa, macroevolução, interação predador-presa


ZOCCA, CÁSSIO, M.Sc Universidade Vila Velha – ES, fevereiro de 2019. **ATRIBUTOS FUNCIONAIS PREDIZEM A DIVERSIDADE DE MECANISMOS**

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## ABSTRACT

Animals evolved a diversity of antipredator mechanisms to avoid recognition, approach or predation, which may be a result of the selective pressure imposed by predators, combined with the functional attributes of the prey. In this study we evaluated whether the diversity of antipredator mechanisms in anurans is predicted by their functional attributes, under the hypothesis that the diversity of anuran antipredator mechanisms is predicted by their period of activity, body size, habitat and habit. We used a global scale database on antipredator mechanisms containing 650 species of post-metamorphic anurans. For the analyzes we used a subset of species (N = 430) extracted from this database. We performed statistical analyzes based on species that presented diversity equal to or greater than two antipredator mechanisms. Our results show that the diversity of antipredator mechanisms is related to the functional attributes of anuran species. The models 'period of activity + habitat + body size' and 'habitat + body size' were the best to explain the diversity of predator mechanisms in anurans. Our study reveals relationships between antipredator mechanisms and functional attributes of post-metamorphic anurans and suggests that the diversity of antipredator mechanisms is determined by the life history of species. We conclude that antipredator mechanisms diversity was greater in larger, generalist, forest and nocturnal species, where body size, habitat and period of activity were shown important predictors of the diversity of antipredator mechanisms in post-metamorphic anurans.



**Keywords:** adaptation, functional ecology, defense, macroevolution, predator-prey interaction.


## INTRODUÇÃO

Animais evoluíram uma diversidade de mecanismos antipredador, envolvendo adaptações comportamentais, morfológicas, e químicas para evitar reconhecimento, aproximação ou predação (e.g., Ruxton et al. 2004; Caro 2005; Apêndice 2). É possível que a diversidade de mecanismos antipredador seja resultado da pressão seletiva imposta pelos predadores (Endler 1991) e influenciada pelos atributos funcionais das presas (e.g., Licht 1986).

Predação é considerada uma das interações seletivas mais importantes da história natural dos organismos, e tem sérias consequências na aptidão (Williams et al. 2000). Por exemplo, aves podem abrir as asas para se parecer maior (Yorzinski and Platt 2011). A perereca arborícola *Gastrotheca megacephala* emite canto de ameaça (warning call, sensu Ferreira et al. 2019) possivelmente para inibir predadores auditivamente orientados como pequenos mamíferos (Lourenço-de-Moraes et al. 2016; Mira-Mendes et al. 2016).

Possivelmente, os atributos funcionais como tamanho do corpo, habitat, hábito e período de atividade influenciam a diversidade de mecanismos antipredador. Estudos que avaliaram as interações entre mecanismos antipredador de presas e seus atributos funcionais tenderam a enfocar em respostas médias mostradas por classes de presas, ou conexões entre mecanismos (Borteiro et al. 2018). Espécies de presas podem ser direcionadas a apresentar uma maior diversidade de mecanismos antipredador sob influência do tamanho do corpo (Gomes et al. 2002). Em Carnivora, o nível de defesa química foi positivamente associado à conspicuidade (i.e., aposematismo), e o tamanho corporal e o uso de habitats abertos foram positivamente relacionados ao aposematismo (Stankowich et al. 2011).

Estudar o efeito das interações predador-presa sobre a ecologia e a evolução de presas contribui para entender como a diversidade de mecanismos antipredador pode ser determinada. Mecanismos como a coloração aposemática, mimetismo e toxinas têm sido estudados em microescala (de espécie ou indivíduo) desde muito antes de Darwin (Summers and Clough 2001).

Diferenças fisiológicas e morfológicas das espécies podem levar a uma variação no risco da predação entre espécies e afetar a diversidade de mecanismos antipredador. Diferenças nos atributos morfológicos e ecológicos das espécies podem estar relacionados ao risco de predação, sujeito a interações complexas com outros fatores intrínsecos (e.g., condição reprodutiva, experiência ou aprendizado) e extrínsecos (e.g., tipo e densidade do predador, atributos do habitat, temperatura e contexto social) (revisado por Endler 1986). É provável que alguns fatores sejam mais influentes do que outros, podendo ser mais úteis na construção de modelos gerais da diversidade de mecanismos antipredador. Estudos mostram que alguns mecanismos podem ser exibidos independentemente (e.g., Toledo et al. 2010), mas é provável que espécies de presas combinem diferentes mecanismos de seu arsenal exibindo de forma sinérgica para uma maior efetividade durante as interações predador-presa (Toledo et al. 2011; Lourenço-de-Moraes et al. 2016). Um exemplo é o uso de espinhos venenosos em anfíbios anuros (*Aparasphenodon brunoi*, *Corythomantis greeningi*) que combinam componentes químicos e morfológicos (Jared et al. 2005, 2015).

O objetivo deste estudo foi avaliar se a diversidade de mecanismos antipredador em anuros é predita por seus atributos funcionais. Hipotetizamos que a diversidade de mecanismos antipredador de anuros é predita pelo seu período de atividade, tamanho corporal, habitat e hábito. É provável que anuros noturnos sofram maior pressão de predação, principalmente das serpentes, exibindo maior diversidade de mecanismos antipredador, devido a incidência de predação especialmente alta durante o período noturno (Toledo et al. 2007). Pode ser que o tamanho corporal influencie a diversidade de mecanismos antipredador, pois espécies de grande tamanho são rastreadas com maior eficiência pelos predadores, principalmente os visualmente orientados (Koski et al. 2018). Anuros generalistas do habitat podem exibir maior diversidade de mecanismos antipredador devido a soma das pressões seletivas de predação nos diferentes tipos de habitat (área aberta e floresta) (Toledo et al. 2007). É possível que anuros de hábito terrestre exibam maior diversidade de mecanismos antipredador, devido a maior riqueza de predadores de anuros neste micro-habitat (Toledo et al. 2007). Para isso, avaliamos a relação entre os atributos funcionais de anfíbios anuros e os mecanismos antipredador.

## MATERIAL E MÉTODOS

Utilizamos um banco de dados de escala global sobre mecanismos antipredador contendo 650 espécies de anuros pós-metamórficos (i.e., juvenis e adultos) (ver Apêndice 1). A classificação dos mecanismos antipredador segue proposta de Ferreira et al. (2019).

Adicionamos a esse banco de dados, informações sobre os atributos funcionais dos anuros com base na literatura e observações de campo, onde consideramos quatro atributos funcionais: período de atividade (diurnas e noturnas), tamanho corporal (cm), habitat (área aberta, florestal e generalista) e hábito (aquático, arbóreo, fossorial e terrestre) (Apêndice 2).

Adaptamos os atributos funcionais de Haddad et al. (2013) e Oliveira et al. (2017). A característica habitat reportado por Oliveira et al. (2017) foi considerada neste estudo como hábito. Espécies reportadas por Haddad et al. (2013) como de hábito criptozóico foram incluídas como de hábito fossorial, pela similaridade entre esses grupos e dificuldade de determinação do micro-habitat em trabalhos de campo. Espécies reportadas por Haddad et al. (2013) como de hábito reofílico e semiaquático foram incluídas como de hábito aquático, devido a íntima associação dessas espécies com a água. Espécies reportadas por Haddad et al. (2013) como de hábito fitotelmata foram incluídas como sendo de hábito arbóreo. Em relação ao período de atividade, espécies reportadas como diurna e noturna por Haddad et al. (2013) e Oliveira et al. (2017) foram incluídas como noturnas. Espécies reportadas por Oliveira et al. (2017) como diurna, noturna e crepuscular foram incluídas como noturnas.

### *Análises estatísticas*

Todas as análises estatísticas foram realizadas usando a versão 3.4.4 do software R (R Core Team 2017). Para as análises estatísticas, utilizamos um subconjunto de espécies (N= 430) extraído do banco de dados sobre mecanismo antipredador de anuros pós-metamórficos (ver Apêndice 1). Isso foi realizado para manter somente as espécies que tenham informações completas para todas as variáveis preditoras (período de atividade, tamanho corporal, habitat e hábito).

Realizamos análises estatísticas baseadas nas espécies que apresentaram diversidade igual ou superior a dois mecanismos antipredador. Este critério foi adotado na tentativa de eliminar espécies com apenas coloração (camuflagem ou aposematismo) como mecanismo antipredador registrado. Para analisar os dados, foram utilizados modelos mistos lineares generalizados (GLMMs) com distribuição de Poisson truncada (pacote glmmTMB; Brooks et al. 2017). Esta distribuição é adequada para dados compostos por números inteiros e assume que não há probabilidade de obter zeros na variável resposta (número de mecanismos antipredador) (Magnusson et al. 2018).

A variável resposta foi o número de mecanismos antipredador registrado para cada espécie de anuro. As variáveis preditoras incluídas nos modelos foram:

período de atividade, habitat, hábito, tamanho corporal e o número de referências bibliográficas. O número de referências bibliográficas registradas para cada espécie foi usado para controle do efeito do esforço. Para que as estimativas de tamanho de efeito das variáveis preditoras fosse padronizada, escalonamos as variáveis contínuas (tamanho corporal e número de referências bibliográficas).

Incluímos gêneros dentro da família como uma variável aleatória aninhada para tentar controlar o efeito filogenético sobre a diversidade de mecanismos. Testamos por superdispersão e multicolinearidade (variance inflation factor, VIF > 7, função vif.mer; Frank 2011) entre preditoras e inspecionamos gráficos residuais. A multicolinearidade foi avaliada em um modelo linear misto generalizado (família de Poisson) construído com o pacote lme4 (Bates et al. 2015). Um valor extremo foi removido após a inspeção de resíduos. Realizamos a seleção de modelo (comando dredge do pacote MuMIn; Barton 2018) incluindo todas as combinações aditivas entre preditoras e usando o critério de Akaike corrigido para pequenas amostras ($AIC_c$). Por fim, estimamos os coeficientes das preditoras com o modelo de médias condicionais (comando model.avg do pacote MuMIn; Barton 2018), que considera todos os modelos contendo a variável em questão. Para verificar a variação na diversidade de mecanismos antipredador entre níveis de uma variável com 3 ou mais níveis, refizemos o modelo e a seleção de modelos, alterando o modelo de referência (e.g., alterando habitat generalista para habitat aberto).

## RESULTADOS

De acordo com a seleção de modelos, os atributos funcionais habitat, tamanho corporal e período de atividade explicaram 85% da diversidade de mecanismos antipredador (Tabela 1). Dois modelos (‘período de atividade+habitat+tamanho corporal’ e ‘habitat+tamanho corporal’) foram os mais adequados para explicar a diversidade de mecanismos antipredador em anuros ($wAIC_c$= 0,573 e 0,274, respectivamente) (Tabela 1).

**Tabela 1.** Seleção de modelos seguindo critério de Akaike corrigido para amostras pequenas ($AIC_c$) para explicar a variação na diversidade de mecanismos antipredador. O efeito do número de referências na diversidade de mecanismos foi controlado pela inclusão desta variável em todos os modelos. São listados os melhores modelos e o modelo nulo.

| Ref. | Modelos | $AIC_c$ | $\Delta AIC_c$ | $wAIC_c$ |
|---|---|---|---|---|
| 1 | período de atividade+habitat+tamanho corporal | 1772,8 | 0 | 0,573 |
| 2 | habitat+tamanho corporal | 1774,2 | 1,47 | 0,274 |
| 3 | período de atividade+hábito+habitat+tamanho corporal | 1776,5 | 3,77 | 0,087 |
| 4 | hábito+habitat+tamanho corporal | 1777,5 | 4,77 | 0,053 |
| 5 | período de atividade+tamanho corporal | 1780,6 | 7,81 | 0,012 |
| 6 | tamanho corporal | 1784 | 11,19 | 0,002 |
| 7 | modelo nulo | 2031.4 | 254.71 | 0.000 |

**Tabela 2.** Coeficientes condicionais do modelo médio.

| | Estimativa | Erro | z | p-valor |
|---|---|---|---|---|
| Intercepto | 1,216 | 0,118 | 13,006 | **<0,001** |
| período de atividade (noturno) | 0,162 | 0,086 | 1,99 | 0,059 |
| habitat (florestal) | 0,175 | 0,069 | 3,072 | **0,012** |
| habitat (generalista) | 0,257 | 0,074 | 3,841 | **0,001** |
| tamanho corporal (scaled) | 0,092 | 0,024 | 14,142 | **0,001** |
| Número de referências (scaled) | 0,297 | 0,020 | 1,07 | **<0,001** |
| hábito (arbóreo) | -0,040 | 0,151 | 0,111 | 0,787 |
| hábito (fossorial) | 0,037 | 0,178 | 0,255 | 0,834 |
| hábito (terrestre) | -0,110 | 0,153 | 0,538 | 0,471 |

A diversidade de mecanismos antipredador aumentou de acordo com o tamanho corporal (Tabela 2; Figura 1A). A diversidade de mecanismos antipredador foi maior em espécies generalistas e florestais do que em espécies de área aberta (Tabela 2; Figura 1B), porém não houve diferença entre espécies florestais e generalistas ($\beta = 0,08 \pm 0,06$, $p = 0,18$). Em relação ao período de atividade, houve tendência de maior diversidade de mecanismos antipredador em espécies noturnas do que diurnas (Figura 1C; Tabela 2). Por fim, não houve relação entre a diversidade de mecanismos antipredador e o hábito das espécies (Figura 1D; Tabela 1).

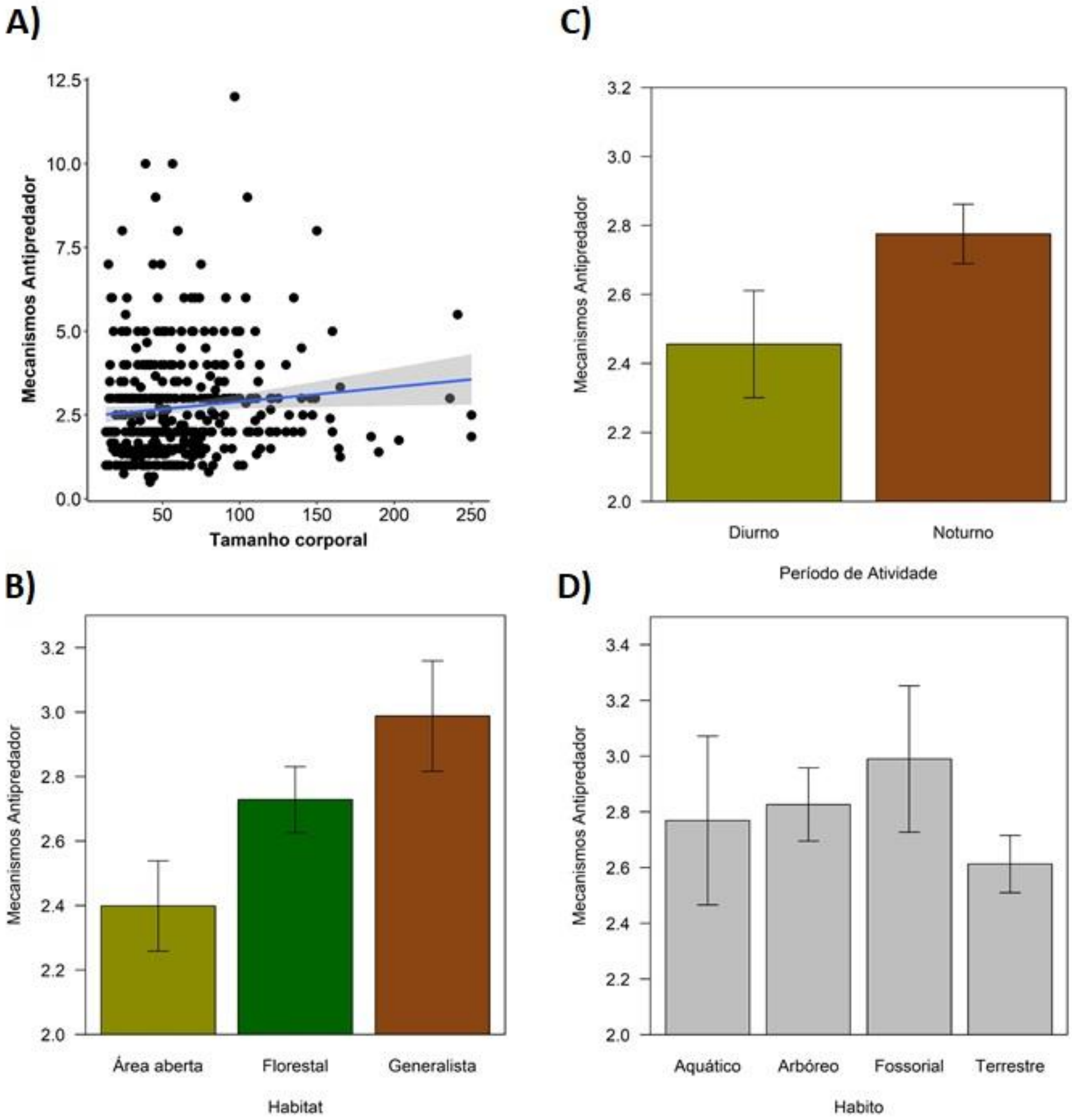


**Figura 1.** Relação entre diversidade de mecanismos antipredador (eixo y; média ± EP) e atributos funcionais (eixo x) das espécies de anuros pós-metamórficos: A) Tamanho corporal, B) Habitat, C) Período de atividade and D) Hábito. O número de mecanismos antipredador foi dividido pelo esforço de estudo por espécie (i.e., número de referências bibliográficas).

## DISCUSSÃO

Nossos resultados mostram que a diversidade de mecanismos antipredador está associada com atributos funcionais em anfíbios anuros pós-metamórficos. O tamanho corporal, habitat e o período de atividade foram os atributos funcionais mais importantes para explicar a diversidade de mecanismos antipredador em anuros. Em relação ao hábito, nossos resultados mostram que essa não foi uma variável explicativa para a diversidade de mecanismos antipredador.

Em relação ao tamanho corporal, mostramos que o aumento do tamanho corporal está positivamente associado com a diversidade de mecanismos antipredador em anuros. Esse padrão corrobora com muitos estudos, mostrando relação positiva entre o tamanho corporal e a diversidade de mecanismos antipredador (Marchisin and Anderson 1978; Gomes et al. 2002). Por exemplo, o tamanho corporal correlaciona-se positivamente com a variação de fuga escalar em hilídeos (Marchisin and Anderson 1978). Em serpentes, indivíduos jovens de *Thamnophis ordinoides* exibiram baixo número de mecanismos antipredador, provavelmente devido ao pequeno tamanho corporal (Brodie III and Russell 1999). Em peixes, indivíduos maiores se esconderam com mais frequência quando expostos a predadores (Krause et al. 1998). Em relação aos anuros, é possível que espécies como *Rhinella diptycha* e *Leptodactylus pentadactylus* sejam mais suscetíveis a interações com predadores, pois são facilmente localizadas devido ao seu tamanho grande, o que provavelmente os pressiona a desenvolver maior diversidade de mecanismos antipredador. A predação provavelmente diminui em indivíduos maiores (e.g., Vitt 2000).

Em relação ao habitat, mostramos que anuros generalistas e florestais exibem mais mecanismos antipredador do que anuros de áreas abertas. Por exemplo, espécies generalistas de habitat como *Boana faber* e *L. latrans* exibem maior diversidade de mecanismos antipredador. Da mesma forma, espécies florestais como *Myersiella microps* e *Proceratophrys schirchi* também exibem maior diversidade de mecanismos antipredador (Mônico et al. 2017). Provavelmente anuros generalistas e florestais são expostos a maior diversidade de predadores como aves, mamíferos, répteis e invertebrados (Toledo 2005; Toledo et al. 2007).

Em relação ao período de atividade, anuros noturnos tendem a exibir mais mecanismos antipredador. É possível que a pressão seletiva em anuros diurnos seja direcionada para mecanismos relacionados à coloração (ou seja, aposematismo), porque os predadores diurnos são principalmente orientados visualmente (Toledo et al. 2007). Serpentes são consideradas os principais predadores de anuros, e como consequência, é possível que as mesmas exerçam forte pressão seletiva, impulsionando a diversificação dos mecanismos antipredador em anuros (ver Vamosi 2005), especialmente em noturnos.

Em relação ao hábito, nossos resultados mostram que essa não foi uma variável explicativa para a diversidade de mecanismos antipredador. Esperávamos que anuros arbóreos exibissem mais mecanismos antipredador, devido a variação na estratificação vertical, o que pode favorecer uma maior diversidade de predadores. Além do hábito, outros fatores podem determinar os mecanismos antipredador das espécies. Em lagartos, por exemplo, os tipos de substratos são muito importantes na fuga (Kopena 2011). No entanto, nossos resultados não detectaram influência do hábito das espécies de anuros em relação à diversidade de mecanismos antipredador, provavelmente porque a diversidade de predadores de anuros está presente nos mesmos tipos de substrato que as espécies analisadas.

## CONCLUSÕES

Neste capítulo, confirmamos que os atributos funcionais têm influência sobre a diversidade de mecanismos antipredador das espécies de anuros pós-metamórficos. Mostramos forte relação entre a diversidade de mecanismos antipredador e atributos funcionais como habitat, tamanho corporal e período de atividade. A seleção de modelos mostrou que dois modelos foram os melhores para explicar a diversidade de mecanismos antipredador em anuros. Enfatizamos que trabalhos combinando medidas quantitativas de atributos morfológicos e ecológicos são valiosos para o avanço do conhecimento sobre macroecologia evolutiva, porque a história de vida representa diferentes estratégias que evoluíram para maximizar a aptidão individual. Recomendamos que novos estudos avaliem as taxas de predação em relação a diversidade de mecanismos antipredador entre espécies com diferentes atributos funcionais. Esperamos despertar um interesse renovado em mecanismos antipredador de anuros pós-metamórficos para entender melhor a evolução das interações predador-presa.

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## APÊNDICES

**Appendix 1.** Antipredator mechanisms of post-metamorphic anurans. Legenda: 1) Camouflage – a) Background matching; b) disruptive; 2) Immobility; 3) Interrupt calling; 4) Aposematism – a) Exposed; b) Hidden; 5) Charge; 6) Posture – a) Body elevation; b) Body inflation; c) Contraction; d) Gland exposure; e) Limbs interweave; f) Mouth gape; g) Rear elevation; h) Stretching limbs; i) Death feigning; j) Unken reflex; 7 Escape – a) Climb; b) Glide; c) Hide; d) Jump away; e) Roll; f) Swim; 8) Warning sound; 9) Cloacal discharge; 10) Secretion – a) Adhesive; b) Odoriferous; c) Slippery; d) Poisonous; 11) Aggression – a) Bite; b) Headbutt; c) Kick; d) Puncture; 12) Distress call.

| Taxon | Antipredator Mechanisms | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | References |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **1** | | **2** | **3** | **4** | | **5** | **6** | | | | | | | | | | **7** | | | | | | **8** | **9** | **10** | | | | **11** | | | | **12** | |
| | **a** | **b** | | | **a** | **b** | | **a** | **b** | **c** | **d** | **e** | **f** | **g** | **h** | **i** | **j** | **a** | **b** | **c** | **d** | **e** | **f** | | | **a** | **b** | **c** | **d** | **a** | **b** | **c** | **d** | | |
| **Alsodidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Eupsophus emiliopugini* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Formas and Poblete 1996; Toledo et al. 2011 |
| **Arthroleptidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Leptopelis rufus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Amiet 1975; Toledo et al. 2010 |
| **Batrachylidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Atelognathus praebasalticus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Cei 1980 |
| **Bombinatoridae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Barbourula busuangensis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Myers 1943 |
| *Bombina bombina* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2011; Zimic 2015 |
| *Bombina maxima* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Bombina orientalis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Choi et al. 1999 |
| *Bombina variegata* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Our data; Jablonski and Vlcek 2012 |
| **Brachycephalidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Brachycephalus alipioi* | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Brachycephalus ephippium* | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Our data; Toledo and Jared 1995; Pires et al. 2005; Toledo et al. 2011 |
| *Brachycephalus ferruginus* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Brachycephalus garbeanus* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Brachycephalus guarani* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Brachycephalus hermogenesi* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2011; Haddad et al. 2013 |
| *Brachycephalus margaritatus* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Brachycephalus nodoterga* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Pires et al. 2005; Haddad et al. 2013 |
| *Brachycephalus pernix* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Pires et al. 2005; Haddad et al. 2013 |
| *Brachycephalus pitanga* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2011; Haddad et al. 2013 |
| *Brachycephalus pombali* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Brachycephalus toby* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Brachycephalus tridactylus* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Brachycephalus vertebralis* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Ischnocnema abdita* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Ischnocnema epipeda* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Ischnocnema erythromera* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Ischnocnema guentheri* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2008; Toledo et al. 2010; Haddad et al. 2013 |
| *Ischnocnema henselii* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Figueiredo et al. 2017 |
| *Ischnocnema juipoca* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010; Haddad et al. 2013 |
| *Ischnocnema oea* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Ischnocnema parva* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Toledo et al. 2010 |
| *Ischnocnema verrucosa* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| **Brevicipitidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Callulina kreffti* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Harper and Vonesh 2011; Toledo et al. 2011 |
| **Bufonidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Amazophrynella bokermanni* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Russell 2002 |
| *Amazophrynella minuta* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Russell 2002; Toledo et al. 2010 |
| *Anaxyrus americanus* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Chen and Chen 1933; Marchinsin and Anderson 1978; Green and Pauley 1987; Heinen 1994; Toledo and Jared 1995 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Anaxyrus boreas* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Our data; Toledo et al. 2011 |
| *Anaxyrus canorus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Mullally 1953 |
| *Anaxyrus exsul* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Anaxyrus fowleri* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Chen and Chen 1933 |
| *Anaxyrus hemiophrys* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Breckenridge and Tester 1961; Underhill 1961; McNicholl 1972 |
| *Anaxyrus houstonensis* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Thomas and Allen 1997 |
| *Anaxyrus quercicus* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Chen and Chen 1933; Marchinsin and Anderson 1978; Toledo et al. 2011 |
| *Anaxyrus terrestris* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Truitt 1964; Marchinsin and Anderson 1978; Toledo et al. 2011 |
| *Anaxyrus woodhousii* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Brown 1974 |
| *Ansonia inthanon* | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Daly et al. 2004 |
| *Atelopus pulcher* | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Atelopus spumarius* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Lima et al. 2005 |
| *Atelopus zeteki* | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Brown et al. 1977; Lindquist et al. 1999 |
| *Bufo bufo* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Ewert and Traud 1979 |
| *Bufo gargarizans* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Chen and Chen 1933 |
| *Bufo japonicus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Chen and Chen 1933 |
| *Bufotes viridis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Chen and Chen 1933 |
| *Dendrophryniscus berthalutzae* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010; Toledo et al. 2011; Haddad et al. 2013 |
| *Dendrophryniscus brevipollicatus* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Toledo et al. 2010 |
| *Dendrophryniscus carvalhoi* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Cassimiro et al. 2010; Haddad et al. 2013 |
| *Dendrophryniscus leucomystax* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Dendrophryniscus proboscideus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Duttaphrynus melanostictus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Toledo and Jared 1995 |
| *Duttaphrynus stomaticus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Sharma et al. 2011 |
| *Epidalea calamita* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Noble 1931 |
| *Frostius erythrophthalmus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Frostius pernambucensis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Incilius alvarius* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Chen and Chen 1933; Hanson and Vial 1956; Toledo et al. 2011 |
| *Incilius luetkenii* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Mays 2010 |
| *Incilius occidentalis* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Abbadié-Bisogno et al. 2001; Toledo et al. 2010 |
| *Incilius valliceps* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Chen and Chen 1933 |
| *Ingerophrynus divergens* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Daly et al. 2004 |
| *Ingerophrynus parvus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Daly et al. 2004 |
| *Leptophryne borbonica* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Daly et al. 2004 |
| *Melanophryniscus admirabilis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Melanophryniscus alipioi* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Melanophryniscus atroluteus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Baldo and Basso 2004 |
| *Melanophryniscus cambaraensis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Melanophryniscus cupreuscapularis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Fernandéz 1927; Kwet et al. 2005; Haddad et al. 2013 |
| *Melanophryniscus devincenzii* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Manzano et al. 2004 |
| *Melanophryniscus dorsalis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Melanophryniscus krauczuki* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Baldo and Basso 2004 |
| *Melanophryniscus macrogranulosus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013; Caorsi et al. 2014 |
| *Melanophryniscus montevidensis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Fernandéz 1927; Kwet et al. 2005 |
| *Melanophryniscus moreirae* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Almeida-Santos et al. 2010; Toledo et al. 2010; Toledo et al. 2011; Haddad et al. 2013; Jeckel et al. 2015 |
| *Melanophryniscus orejasmirandai* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Kolenc et al. 2003 |
| *Melanophryniscus pachyrhynus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Fernandéz 1927; Kwet et al. 2005, op. cit. |
| *Melanophryniscus rubriventris* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Laurent 1973 |
| *Melanophryniscus setiba* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Melanophryniscus simplex* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Melanophryniscus spectrabilis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Melanophryniscus stelzneri* | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Fernández 1927 |
| *Melanophryniscus tumifrons* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Melanophryniscus vilavelhensis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Oreophrynella nigra* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Garcia-París and Deban 1995 |
| *Oreophrynella quelchii* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Noble 1931 |
| *Oreophrynella vasquezi* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Noble 1931 |
| *Osornophryne percrassa* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Escobar-Lasso and González-Duran 2012 |
| *Peltophryne empusa* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Jared et al. 2005 |
| *Peltophryne lemur* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Pacheco and Barber 2013 |
| *Phrynoidis asper* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Daly et al. 2004 |
| *Rentapia hosii* | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Daly et al. 2004; Shahrudin 2016 |
| *Rhaebo guttatus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm.; Mailho-Fontana et al. 2013 |
| *Rhaebo haematiticus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Hantak et al. 2016 |
| *Rhinella abei* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010; Haddad et al. 2013 |
| *Rhinella achavali* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Rhinella arenarum* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Chen and Chen 1933 |
| *Rhinella castaneotica* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Rhinella crucifer* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Rhinella diptycha* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | Our data; Norman 1994; Zamprogno et al. 1998; Toledo et al. 2010; Toledo et al. 2011; Haddad et al. 2013; Silva-Soares et al. 2016 |
| *Rhinella dorbignyi* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Rhinella fernandezae* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Rhinella gildae* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Silva et al. 2018 |
| *Rhinella granulosa* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | Our data; Hodl and Gollmann 1986; Mângia and Santana 2013; Santos-Silva et al. 2014 |

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| *Rhinella henseli* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Rhinella hoogmoedi* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Rhinella horribilis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Papenfuss 1960 |
| *Rhinella humboldti* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Vargas-Salinas and Aponte-Gutierrez 2013 |
| *Rhinella icterica* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Our data; Toledo et al. 2010; Toledo et al. 2011; Haddad et al. 2013 |
| *Rhinella jimi* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Jared et al. 2009; Toledo et al. 2010; Haddad et al. 2013 |
| *Rhinella limensis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Barboza et al. 2016 |
| *Rhinella major* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Rhinella margaritifera* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Rhinella marina* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | Our data; Dodds 1923; Chen and Chen 1933; Allen and Neill 1956; Vaz-Silva and Frota 2004; Toledo et al. 2010; Flaherty and Friers 2013; Mailho-Fontana et al. 2013; Thomas et al. 2017 |
| *Rhinella ocellata* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Kokubum 2005; Toledo et al. 2010; Toledo et al. 2011 |
| *Rhinella ornata* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Toledo et al. 2010; Toledo et al. 2011; Muscat and Moroti 2018 |
| *Rhinella proboscidea* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Gomes et al. 2018 |
| *Rhinella pygmaea* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013; Figueiredo-de-Andrade and Silveira 2018 |
| *Rhinella rubescens* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010 |
| *Sclerophrys camerunensis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Barej 2010 |
| *Sclerophrys regularis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Chen and Chen 1933 |
| **Calyptocephalellidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Calyptocephalella gayi* | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | Our data |
| **Centrolenidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Centrolene geckoideum* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Rueda-Almonacid 1994 |
| *Centrolene quindianum* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Escobar-Lasso and Rojas-Morales 2012 |

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| *Centrolene savagei* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Escobar-Lasso and Rojas-Morales 2012 |
| *Hyalinobatrachium colymbiphyllum* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | Toledo et al. 2011 |
| *Hyalinobatrachium valerioi* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Vockenhuber et al. 2008 |
| *Nymphargus grandisonae* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Escobar-Lasso and Rojas-Morales 2012 |
| *Vitreorana uranoscopa* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | Our data; Toledo et al. 2010; Haddad et al. 2013; Souza et al. 2016 |
| **Ceratobatrachidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Cornufer guentheri* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | Noble 1931 |
| **Ceratophryidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Ceratophrys aurita* | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | Toledo et al. 2011; Haddad et al. 2013 |
| *Ceratophrys cornuta* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Lima et al. 2005 |
| *Ceratophrys cranwelli* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | Toledo et al. 2011; Lappin et al. 2017 |
| *Ceratophrys joazeirensis* | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | Toledo and Haddad 2009; Toledo et al. 2011; Haddad et al. 2013 |
| *Ceratophrys ornata* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | Our data; Toledo et al. 2011 |
| *Lepidobatrachus asper* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Cei 1955 |
| *Lepidobatrachus laevis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | Our data; AmphibiaWeb 2019 |
| **Craugastoridae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Craugastor augusti* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | McAlister 1954; Jameson 1954 |
| *Craugastor bransfordii* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Cooper Jr. et al. 2008 |
| *Craugastor fitzingeri* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Cooper Jr. et al. 2008 |
| *Craugastor megacephalus* | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Cooper Jr. et al. 2008 |
| *Craugastor mimus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Cooper Jr. et al. 2008 |
| *Craugastor noblei* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Cooper Jr. et al. 2008 |
| *Eleutherodactylus bilineata* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Euparkerella brasiliensis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013; Hepp et al. 2016 |
| *Euparkerella cochranae* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2011 |
| *Euparkerella tridactyla* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Ferreira et al. 2013; Haddad et al. 2013 |
| *Haddadus binotatus* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | Our data; Toledo and Haddad 2009; Toledo et al. 2010; Toledo et al. 2011; Haddad et al. 2013 |

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| *Holoaden bradei* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Holoaden luederwaldti* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Holoaden pholeter* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Pombal et al. 2008; Haddad et al. 2013 |
| *Pristimantis altamazonicus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Pristimantis conspicillatus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Pristimantis diadematus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Pristimantis fenestratus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm.; Lima et al. 2005 |
| *Pristimantis paulodutrai* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Pristimantis ramagii* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Pristimantis skydmainos* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Pristimantis vinhai* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Strabomantis biporcatus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Heatwole 1962 |
| **Cycloramphidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Cycloramphus acangatan* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | Our data; Toledo et al. 2011; Lourenço-de-Moraes and Lourenço-de-Moraes, 2012; Haddad et al. 2013 |
| *Cycloramphus boraceiensis* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | Hartmann et al. 2003; Toledo et al. 2011 |
| *Cycloramphus brasiliensis* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Cycloramphus dubius* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | Giaretta and Cardoso 1995; Haddad et al. 2013 |
| *Cycloramphus eleutherodactylus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | Toledo et al. 2011; Haddad et al. 2013 |
| *Cycloramphus lutzorum* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | Toledo et al. 2011; Haddad et al. 2013 |
| *Thoropa miliaris* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Thoropa taophora* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2011; Haddad et al. 2013 |
| *Zachaenus carvalhoi* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Motta et al. 2010; Moura et al. 2010; Haddad et al. 2013; Zocca et al. 2014 |
| *Zachaenus parvulus* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Rocha et al. 1998; Haddad et al. 2013 |
| **Aromobatidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| *Allobates femoralis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Summers and Clough 2001; Lima et al. 2005 |
| *Allobates flaviventris* | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Allobates hodli* | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Allobates olfersioides* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2011 |
| *Allobates subfolionidificans* | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Allobates trilineatus* | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Anomaloglossus beebei* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bourne 2001 |
| *Aromobates nocturnus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Vitt and Caldwell 2009 |
| **Dendrobatidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Adelphobates castaneoticus* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Caldwell and Myers 1990 |
| *Adelphobates galactonotus* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Hoogmoed and Avila-Pires 2012 |
| *Adelphobates quinquevittatus* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Ameerega bilinguis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Summers and Clough 2001 |
| *Ameerega flavopicta* | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2004; Oda et al. 2013 |
| *Ameerega hahneli* | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm.; Summers and Clough 2001 |
| *Ameerega picta* | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Ameerega trivittata* | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm.; Summers and Clough 2001 |
| *Andinobates minutus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Summers and Clough 2001 |
| *Dendrobates auratus* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Brodie 1978; Toledo and Jared 1995; Summers and Clough 2001; Hantak et al. 2016 |
| *Dendrobates leucomelas* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Summers and Clough 2001 |
| *Dendrobates tinctorius* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Summers and Clough 2001 |
| *Epipedobates anthonyi* | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Summers and Clough 2001 |
| *Epipedobates boulengeri* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Summers and Clough 2001 |
| *Epipedobates tricolor* | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Summers and Clough 2001 |
| *Oophaga granulifera* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Summers and Clough 2001; Willink et al. 2013 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Oophaga histrionica* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Summers and Clough 2001 |
| *Oophaga pumilio* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Summers and Clough 2001; Hagman 2006; Ozel and Stynoski 2011; Maan and Cummings 2012 |
| *Oophaga speciosa* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Summers and Clough 2001 |
| *Phyllobates aurotaenia* | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Daly and Witkop 1971 |
| *Phyllobates bicolor* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Summers and Clough 2001 |
| *Phyllobates lugubris* | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Summers and Clough 2001 |
| *Phyllobates terribilis* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Toledo and Jared 1995 |
| *Phyllobates vittatus* | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Summers and Clough 2001 |
| *Ranitomeya sirensis* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Ranitomeya toraro* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Ranitomeya vanzolinii* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Ranitomeya ventrimaculata* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Summers and Clough 2001 |
| **Dicroglossidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Hoplobatrachus tigerinus* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | Brodie and Nussbaum 1987; Toledo et al. 2011 |
| *Limnonectes blythii* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Shahrudin 2016 |
| *Sphaerotheca breviceps* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Dissanayake and Wellappuliarachchi 2016 |
| **Eleutherodactylidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Adelophryne glandulata* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Lourenço-de-Moraes et al. 2012 |
| *Adelophryne mucronatus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Lourenço-de-Moaes et al. 2012 |
| *Eleutherodactylus atkinsi* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Alfonso et al. 2013 |
| *Eleutherodactylus coqui* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | Our data |
| *Eleutherodactylus emiliae* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Marrero et al. 2017 |
| *Eleutherodactylus nitidus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Sotelo and Ruiz 2009 |
| *Eleutherodactylus planirostris* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| **Hemiphractidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Fritziana ohausi* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Gastrotheca albolineata* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Gastrotheca fissipes* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Gastrotheca helenae* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | Duelmann and Trueb 1994 |
| *Gastrotheca megacephala* | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | Our data; Haddad et al. 2013; Lourenço-de-Moraes et al. 2016 |
| *Gastrotheca microdiscus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Gastrotheca recava* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | Haddad et al. 2013; Lourenço-de-Moraes et al. 2016 |
| *Hemiphractus fasciatus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | Toledo et al. 2011 |
| *Hemiphractus johnsoni* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | Toledo et al. 2011 |
| *Hemiphractus scutatus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Toledo et al. 2011 |
| *Stefania woodleyi* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | Kok et al. 2007 |
| **Hemisotidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Hemisus guineensis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | De Witte 1941 |
| *Hemisus marmoratus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Greenbaum et al. 2012 |
| **Hylidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Acris blanchardi* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | McKnight et al. 2013 |
| *Acris crepitans* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | McCallum et al. 2001; McCallum 1999 |
| *Acris gryllus* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Marchisin and Anderson 1978 |
| *Aparasphenodon arapapa* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Aparasphenodon bokermanni* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Aparasphenodon brunoi* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | Our data; Lutz and Lutz 1939; Jared et al. 2015 |
| *Aparasphenodon pomba* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Assis et al. 2013 |
| *Aparasphenodon venezolanus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | Lynch and Vargas-Ramírez 2000 |
| *Aplastodiscus albofrenatus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Aplastodiscus albosignatus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Haddad et al. 2008; Toledo and Haddad 2009; Haddad et al. 2013 |
| *Aplastodiscus arildae* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Carneiro and Rocha 2005; Orrico et al. 2006; Toledo and Haddad 2009; Toledo |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | et al. 2010; Toledo et al. 2011; Haddad et al. 2013 |
| *Aplastodiscus cavicola* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Aplastodiscus cochranae* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Toledo and Haddad 2009; Toledo et al. 2010; Haddad et al. 2013 |
| *Aplastodiscus ehrhardti* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Aplastodiscus eugenioi* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Aplastodiscus flumineus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Aplastodiscus ibirapitanga* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Aplastodiscus leucopygius* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Our data; Toledo and Haddad 2009; Haddad et al. 2013; Ferrante et al. 2014 |
| *Aplastodiscus perviridis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Toledo and Haddad 2009; Toledo et al. 2010; Haddad et al. 2013 |
| *Aplastodiscus sibilatus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Aplastodiscus weygoldti* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Argenteohyla siemersi* | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Cajade et al. 2017 |
| *Boana albomarginatus* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | Our data; Toledo and Haddad 2009; Figueiredo-de-Andrade et al. 2010; Toledo et al. 2010; Toledo et al. 2011; Baracho et al. 2013; Haddad et al. 2013; Just and Zocche 2017 |
| *Boana albopunctata* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Our data; Sazima 1972; Toledo and Haddad 2009; Toledo et al. 2010; Haddad et al. 2013; Costa et al. 2014 |
| *Boana beckeri* | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010 |
| *Boana bischoffi* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Toledo and Haddad 2009; Toledo et al. 2010; Toledo et al. 2011; Haddad et al. 2013; Foerster et al. 2017 |
| *Boana boans* | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | Bogert 1960; Höld and Gollmann 1986; Lima et al. 2005; Rocha and López-Baucells 2014 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Boana caingua* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Toledo and Haddad 2009; Toledo et al. 2010; Haddad et al. 2013 |
| *Boana caipora* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Antunes et al. 2008; Toledo and Haddad 2009; Haddad et al. 2013 |
| *Boana calcarata* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Angulo and Funk 2006 |
| *Boana cinerascens* | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Boana crepitans* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | Our data; Toledo and Haddad 2009; Haddad et al. 2013 |
| *Boana curupi* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Boana exastis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | Loebmann et al. 2008; Toledo and Haddad 2009; Haddad et al. 2013 |
| *Boana faber* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | Our data; Toledo and Haddad 2009; Toledo et al. 2010; Toledo et al. 2011; Forti and Bertoluci 2012; Haddad et al. 2013; Manoel and Almeida 2017 |
| *Boana fasciatus* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Angulo and Funk 2006 |
| *Boana geographica* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Azevedo-Ramos 1995; Lima et al. 2005; Angulo et al. 2007; Toledo et al. 2010 |
| *Boana guentheri* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010; Haddad et al. 2013 |
| *Boana lanciformis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | P Melo-Sampaio pers. comm.; Hold and Gollmann 1986 |
| *Boana latistriatus* | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Toledo and Haddad 2009; Toledo et al. 2010; Haddad et al. 2013 |
| *Boana leptolineatus* | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010; Haddad et al. 2013 |
| *Boana leucocheila* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Santana et al. 2013 |
| *Boana lundii* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Toledo and Haddad 2009; Haddad et al. 2013 |
| *Boana marginata* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010; Haddad et al. 2013 |
| *Boana microderma* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Boana pardalis* | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | Our data; Toledo and Haddad 2009; Toledo et al. 2011; Heitor et al. 2012; Haddad et al. 2013; Koski et al. 2018 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Boana polytaenia* | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010; Haddad et al. 2013 |
| *Boana pombali* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Boana prasina* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2011; Haddad et al. 2013 |
| *Boana pulchella* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010; Haddad et al. 2013 |
| *Boana punctata* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm.; Haddad et al. 2013 |
| *Boana raniceps* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | Our data; P Melo-Sampaio pers. comm.; Hold and Gollmann 1986; Toledo and Haddad 2009; Toledo et al. 2011; Haddad et al. 2013; Guerra et al. 2018 |
| *Boana semilineata* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Azevedo-Ramos 1995; Toledo et al. 2010; Haddad et al. 2013 |
| *Boana wavrini* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Lima et al. 2005 |
| *Bokermannohyla ahenea* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Bokermannohyla alvarengai* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | Vrcibradic and VanSluys 2000; Toledo et al. 2011 |
| *Bokermannohyla astartea* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Bokermannohyla capra* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Bokermannohyla caramaschii* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Bokermannohyla carvalhoi* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Bokermannohyla circumdata* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Our data; Toledo and Haddad 2009; Toledo et al. 2010; Toledo et al. 2011; Haddad et al. 2013; Silva et al. 2014 |
| *Bokermannohyla diamantina* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Bokermannohyla gouveai* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Bokermannohyla hylax* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | Toledo and Haddad 2009; Toledo et al. 2010; Toledo et al. 2011; Haddad et al. 2013 |
| *Bokermannohyla ibitipoca* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Bokermannohyla itapoty* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Bokermannohyla izecksohni* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Toledo and Haddad 2009; Haddad et al. 2013 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Bokermannohyla lucianae* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Bokermannohyla luctuosa* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | Toledo and Haddad 2009; Toledo et al. 2011; Haddad et al. 2013; Souza et al. 2017; Moroti et al. 2018 |
| *Bokermannohyla martinsi* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Bokermannohyla nanuzae* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Haddad et al. 2013; Silva et al. 2014 |
| *Bokermannohyla oxente* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Corythomantis greeningi* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | Jared et al. 2005; Jared et al. 2015 |
| *Dendropsophus acreanus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Dendropsophus branneri* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Dendropsophus bromeliaceus* | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Dendropsophus elegans* | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Toledo et al. 2010; Haddad et al. 2013 |
| *Dendropsophus elianeae* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010 |
| *Dendropsophus giesleri* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Toledo et al. 2010; Haddad et al. 2013 |
| *Dendropsophus haddadi* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Dendropsophus joannae* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Dendropsophus leucophyllatus* | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Dendropsophus microps* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Toledo et al. 2010 |
| *Dendropsophus minutus* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | Our data; Boulenger 1911; Toledo and Haddad 2009; Toledo et al. 2010; Haddad et al. 2013; Bovo et al. 2014 |
| *Dendropsophus nanus* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Dendropsophus parviceps* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Dendropsophus rhodopeplus* | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Dendropsophus ruschii* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013; Neves et al. 2017 |
| *Dendropsophus schubarti* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Dendropsophus walfordi* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Dendropsophus werneri* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Lingnau et al. 2004; Toledo et al. 2010; Haddad et al. 2013 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Dryophytes arenicolor* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Powell and Lieb 2003 |
| *Dryophytes chrysoscelis* | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Marchisin and Anderson 1978; McKnight 2012 |
| *Dryophytes cinereus* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Marchisin and Anderson 1978; Höbel 2011 |
| *Dryophytes femoralis* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Marchisin and Andrews 1978 |
| *Hyla versicolor* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Banta and Carl 1967; Brodie and Formanowicz 1981 |
| *Hyloscirtus tapichalaca* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Kizirian et al. 2003 |
| *Itapotihyla langsdorfii* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Megastomatohyla mixomaculata* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Ololygon albicans* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Ololygon arduous* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Ololygon argyreornata* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Ololygon belloni* | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Ololygon catharinae* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | Our data; Toledo et al. 2010; Haddad et al. 2013 |
| *Ololygon flavoguttata* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Ololygon hiemalis* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Gomes et al. 2002; Toledo et al. 2010; Haddad et al. 2013 |
| *Ololygon kautskyi* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013 |
| *Ololygon littoralis* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Ololygon obtriangulata* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013 |
| *Ololygon perpusilla* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010; Lacerda et al. 2015 |
| *Ololygon v-signata* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Osteocephalus castaneicola* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Osteocephalus helenae* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Osteocephalus leprieurii* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | P Melo-Sampaio pers. comm. |
| *Osteocephalus taurinus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Lima et al. 2005 |
| *Phyllodytes kautskyi* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Phyllodytes luteolus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |

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| *Phyllodytes melanomystax* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Phyllodytes tuberculosus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Pseudacris crucifer* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Marchisin and Anderson 1978; Teles et al. 2017 |
| *Pseudacris ocularis* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Marchisin and Anderson 1978 |
| *Pseudacris regilla* | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Brattstorm and Warren 1955; Foster 2007 |
| *Pseudis cardosoi* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Haddad et al. 2013; Toledo and Haddad 2009 |
| *Pseudis platensis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Toledo and Haddad 2009 |
| *Scinax alter* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Toledo et al. 2010; Haddad et al. 2013; Pinto-Silva and Neuhaus 2018 |
| *Scinax cuspidatus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Scinax fuscomarginatus* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Toledo, 2004; Toledo et al. 2010 |
| *Scinax fuscovarius* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Sazima 1972; Rodrigues and Rodrigues 2007; Toledo et al. 2010; Toledo et al. 2011; Haddad et al. 2013 |
| *Scinax garbei* | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Scinax granulatus* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Scinax hayii* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Toledo et al. 2010 |
| *Scinax ictericus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Scinax ruber* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Scinax similis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2011; Haddad et al. 2013 |
| *Scinax x-signatus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Santos-Silva et al. 2014 |
| *Smilisca baudinii* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Duellman and Trueb 1966 |
| *Smilisca fodiens* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Firschein 1951 |
| *Sphaenorhynchus lacteus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Sphaenorhynchus planicola* | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Our data |
| *Tlalocohyla smithii* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Avila-López et al. 2012 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Trachycephalus atlas* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Trachycephalus coriaceus* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm.; De la Riva 1994 |
| *Trachycephalus cunauaru* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Trachycephalus dibernardoi* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Trachycephalus imitatrix* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Trachycephalus lepidus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Trachycephalus mesophaeus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Our data; Toledo et al. 2010; Haddad et al. 2013 |
| *Trachycephalus nigromaculatus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Trachycephalus typhonius* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | P Melo-Sampaio pers. comm.; Duellman 1956; Janzen 1962; Hodl and Gollmann 1986; Evans and Brodie 1994; Manzanilla et al. 1998; Verhoeff 2010; Toledo et al. 2011 |
| *Triprion petasatus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Jared et al. 2005 |
| *Xenohyla truncata* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Napoli 2001 |
| **Pelodryadidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Litoria adelaidensis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | Williams et al. 2000 |
| *Litoria ewingii* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | Our data; Williams et al. 2000 |
| *Litoria fallax* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000 |
| *Litoria meiriana* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000 |
| *Litoria peronii* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | Williams et al. 2000 |
| *Litoria rothii* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | Williams et al. 2000 |
| *Litoria rubella* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | Our data; Williams et al. 2000 |
| *Litoria watjulumensis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000 |
| *Ranoidea alboguttata* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Williams et al. 2000 |
| *Ranoidea aurea* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | Our data; Williams et al. 2000 |
| *Ranoidea australis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Williams et al. 2000 |
| *Ranoidea caerulea* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | Our data; Williams et al. 2000 |
| *Ranoidea cultripes* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Our data; Williams et al. 2000 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Ranoidea dahlii* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000 |
| *Ranoidea genimaculata* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | Williams et al. 2000 |
| *Ranoidea longipes* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000 |
| *Ranoidea moorei* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | Williams et al. 2000 |
| *Ranoidea novaehollandiae* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Williams et al. 2000 |
| *Ranoidea raniformis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | Our data; Williams et al. 2000 |
| *Ranoidea spenceri* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000 |
| *Ranoidea splendida* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | Our data; Williams et al. 2000 |
| **Phyllomedusidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Agalychnis dacnicolor* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Mundel and Jaeger 1971 |
| *Hylomantis aspera* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013; Gally et al. 2014 |
| *Hylomantis granulosa* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Phasmahyla cochranae* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Phasmahyla exilis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Phasmahyla guttata* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013; Machado et al. 2015 |
| *Phasmahyla jandaia* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Phasmahyla spectrabilis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Phasmahyla timbo* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Phrynomedusa marginata* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010; Haddad et al. 2013 |
| *Phyllomedusa bahiana* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | Our data; Toledo et al. 2010; Toledo et al. 2011; Santos-Silva et al. 2014 |
| *Phyllomedusa bicolor* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | P Melo-Sampaio pers. comm.; Toledo and Jared 1995 |
| *Phyllomedusa burmeisteri* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Our data; Toledo et al. 2010; Toledo et al. 2011 |
| *Phyllomedusa camba* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm.; Oliveira et al. 2013 |
| *Phyllomedusa distincta* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013; Toledo et al. 2010 |
| *Phyllomedusa iheringii* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013; Borteiro et al. 2014 |
| *Phyllomedusa palliata* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |

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| *Phyllomedusa sauvagii* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010 |
| *Phyllomedusa tetraploidea* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010; Haddad et al. 2013; Nascimento et al. 2013; Borteiro et al. 2014 |
| *Phyllomedusa vaillantii* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Phyllomedusa venusta* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Escobar-Lasso and González-Durán 2012 |
| *Pithecopus azurea* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010; Borteiro et al. 2014 |
| *Pithecopus centralis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bokermann 1965; Toledo et al. 2010 |
| *Pithecopus hypochondrialis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Andrés Acosta 2008 (Photo online) |
| *Pithecopus nordestina* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010; Falkenberg et al. 2013; Haddad et al. 2013 |
| *Pithecopus rohdei* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Sazima 1972; Sazima 1974; Toledo et al. 2010; Haddad et al. 2013 |
| **Hylodidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Hylodes cardosoi* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Lingnau et al. 2008; Haddad et al. 2013 |
| *Hylodes perplicatus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Germano Woehl Jr 2001 (Photo online); Haddad et al. 2013 |
| *Megaelosia goeldii* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Megaelosia massarti* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| **Hyperoliidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Acanthixalus spinosus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010 |
| *Kassina cochranae* | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Rödel et al. 2000 |
| *Kassina fusca* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Rödel and Braun 1999; Toledo et al. 2010 |
| *Kassina keithae* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Channing and Howell 2003 |
| *Kassina kuvangensis* | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Channing and Howell 2003 |
| *Kassina lamottei* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Rödel et al. 2000 |
| *Kassina maculosa* | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Channing and Howell 2003; Vaclav Gvozdik 2006 (Photo online) |
| *Kassina senegalensis* | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |

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| *Phlyctimantis boulengeri* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | Rödel and Ernst 2001 |
| *Phlyctimantis maculata* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | Liedtke and Müller 2012 |
| *Phlyctimantis verrucosus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | Channing and Howell 2003 |
| *Semnodactylus wealii* | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| **Leiopelmatidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Leiopelma archeyi* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | Greene 1988 |
| *Leiopelma hamiltoni* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | Greene 1988 |
| *Leiopelma hochstetteri* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | Greene 1988 |
| **Leptodactylidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Adenomera hylaedactyla* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Hodl and Gollmann 1986; Borges-Leite et al. 2012 |
| *Adenomera marmorata* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Adenomera thomei* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Ariadne Ângulo 2008 (Photo online); Haddad et al. 2013 |
| *Crossodactylodes bokermanni* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Crossodactylodes izecksohni* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Our data |
| *Edalorhina perezi* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Engystomops freibergi* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Engystomops petersi* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Engystomops pustulosus* | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Jennions and Backwell 1992; Carmona et al. 2017 |
| *Hydrolaetare schmidti* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Hodl and Gollmann 1986 |
| *Leptodactylus bolivianus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | P Melo-Sampaio pers. comm.; Vaira 1997 |
| *Leptodactylus chaquensis* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | Toledo and Haddad 2009; Toledo et al. 2011; Lourenço-de-Moraes et al. 2014; Ferreira et al. 2017; Thaler et al. 2018 |
| *Leptodactylus cunicularius* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010 |
| *Leptodactylus didymus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Leptodactylus flavopictus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Leptodactylus fragilis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Bernal 2012 |

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| *Leptodactylus fuscus* | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Our data; Hodl and Gollmann 1986; Toledo and Haddad 2009; Toledo et al. 2010; Toledo et al. 2011; Haddad et al. 2013 |
| *Leptodactylus griseigularis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | José M. Padial 2009 (Photo online) |
| *Leptodactylus insularum* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Franzen 2017 |
| *Leptodactylus knudseni* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | P Melo-Sampaio pers. comm.; Lima et al. 2005 |
| *Leptodactylus labyrinthicus* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | Martins 1989; Toledo et al. 2005; Toledo et al. 2010; Toledo et al. 2011; Haddad et al. 2013 |
| *Leptodactylus laticeps* | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Abalos 1967; Marco Katzenberger 2010 (Photo online) |
| *Leptodactylus latrans* | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | Our data; Hodl and Gollmann 1986; Toledo et al. 2010; Toledo et al. 2011; Santana et al. 2012; Haddad et al. 2013 |
| *Leptodactylus leptodactyloides* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Leptodactylus macrosternum* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | Andrade et al. 2013; Haddad et al. 2013; Sales et al. 2013; Forti et al. 2017 |
| *Leptodactylus marambaiae* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Siqueira et al. 2006 |
| *Leptodactylus mystaceus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Toledo and Haddad 2009; Toledo et al. 2011; Haddad et al. 2013 |
| *Leptodactylus mystacinus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | Our data; Carvalho-Júnior 2005; Toledo and Haddad 2009; Toledo et al. 2010; Toledo et al. 2011; Haddad et al. 2013 |
| *Leptodactylus notoaktites* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Germano Woehl Jr 2005 (Photo online); Haddad et al. 2013 |
| *Leptodactylus pentadactylus* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | P Melo-Sampaio pers. comm.; Villa 1969; Hodl and Gollmann 1986; Leenders 2001; Savage 2002; Lima et al. 2005; Toledo and Haddad 2009 |
| *Leptodactylus petersii* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |

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| *Leptodactylus plaumanni* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010; Haddad et al. 2013 |
| *Leptodactylus podicipinus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Diogo B. Provete 2008; Haddad et al. 2013 |
| *Leptodactylus rhodonotus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Leptodactylus savagei* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | Toledo and Haddad 2009; Ryan et al. 2010 |
| *Leptodactylus stenodema* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Lima et al. 2005 |
| *Leptodactylus troglodytes* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | Toledo and Haddad 2009; Haddad et al. 2013; Santos-Silva et al. 2014; Sales et al. 2015 |
| *Leptodactylus vastus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | Toledo and Haddad 2009; Haddad et al. 2013 |
| *Leptodactylus viridis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Lithodytes lineatus* | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; P Melo-Sampaio pers. comm.; Schlüter et al. 2009 |
| *Paratelmatobius cardosoi* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013; Cauê Reis 2016 (Photo online) |
| *Paratelmatobius lutzii* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Paratelmatobius poecilogaster* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013; Toledo et al. 2011 |
| *Paratelmatobius yepiranga* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Physalaemus biligonigerus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Queiroz 2012 |
| *Physalaemus camacan* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Pimenta et al. 2005; Haddad et al. 2013 |
| *Physalaemus crombiei* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Physalaemus cuvieri* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Toledo et al. 2010; Gambale et al. 2014 |
| *Physalaemus deimaticus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Sazima and Caramaschi 1986 |
| *Physalaemus erikae* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Dias and Solé 2012; Haddad et al. 2013 |
| *Physalaemus gracilis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Rocha and Martins 2013 |
| *Physalaemus kroyeri* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Gally et al. 2012; Haddad et al. 2013; Santos-Silva et al. 2014 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Physalaemus maculiventris* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Germano Woehl Jr 2001 (Photo online); Haddad et al. 2013 |
| *Physalaemus nanus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010 |
| *Physalaemus nattereri* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Our data; Martins and Duarte 2003; Rodrigues and Oliveira Filho 2004; Lenzi-Mattos et al. 2005; Toledo et al. 2010; Toledo et al. 2011 |
| *Physalaemus olfersii* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Germano Woehl Jr 2005 (Photo online); Haddad et al. 2013 |
| *Physalaemus signifer* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Michael Patrikeev 2012 (Photo online); Haddad et al. 2013 |
| *Pleurodema bibroni* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Kolenc et al. 2009 |
| *Pleurodema brachyops* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Our data; Martins 1989 |
| *Pleurodema bufoninum* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Cei 1962; Kolenc et al. 2009 |
| *Pleurodema thaul* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Kolenc et al. 2009; Toledo et al. 2011 |
| *Pseudopaludicola falcipes* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Pseudopaludicola mystacalis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010 |
| *Pseudopaludicola saltica* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2010 |
| *Scythrophrys sawayae* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Garcia 1999; Germano Woehl Jr 2004, 2005 (Photo online); Haddad et al. 2013 |
| **Mantellidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Boophis albilabris* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Andreone 2002 |
| *Mantella laevigata* | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Heying 2001, Toledo et al. 2011; AmphibiaWeb 2019 |
| **Megophryidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Megophrys carinense* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | Noble 1931 |
| *Megophrys nasuta* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Leptobrachium hasseltii* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Hamidy and Matsui 2011 |
| *Leptobrachium hendricksoni* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Shahrudin 2014 |
| *Leptobrachium smithi* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Chuaynkern et al. 2007; Ali Reza 2009 |
| **Microhylidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Arcovomer passarelli* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Giaretta and Martins 2009; Haddad et al. 2013 |
| *Chiasmocleis bassleri* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Chiasmocleis capixaba* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Chiasmocleis schubarti* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Chiasmocleis ventrimaculata* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Schlüter and Salas 1991 |
| *Ctenophryne geayi* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Lima et al. 2005; Andreas Schlueter 2007 (Photo online); Menin and Rodrigues 2007; Toledo et al. 2011 |
| *Dyscophus antongilii* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Our data; Evans and Brodie 1994 |
| *Dyscophus guineti* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Evans and Brodie 1994 |
| *Elachistocleis bicolor* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Elachistocleis cesarii* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Elachistocleis erythrogaster* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Kwet and Solé 2002; Toledo et al. 2011 |
| *Elachistocleis ovalis* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Kokubum and Menin 2002; Toledo et al. 2011 |
| *Elachistocleis piauiensis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Borges-Leite et al. 2012 |
| *Gastrophryne carolinensis* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | Anderson 1954; Marchisin and Anderson 1978; Garton and Mushinsky 1979; Toledo et al. 2011 |
| *Glyphoglossus guttulata* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Glyphoglossus molossus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Hamptophryne boliviana* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P Melo-Sampaio pers. comm. |
| *Hypopachus barberi* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Hypopachus variolosus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Evans and Brodie 1994 |
| *Kalophrynus interlineatus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Chuaynkern et al. 2009 |
| *Kalophrynus pleurostigma* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; AmphibiaWeb 2019 |
| *Kaloula pulchra* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | Our data; Annandale, 1900; Evans and Brodie 1994; Chuaynkern et al. 2008; Toledo et al. 2011; Purkayastha 2015 |
| *Melanobatrachus indicus* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Kanagavel and Tapley 2013 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Microhyla berdmorei* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Shahrudin 2014 |
| *Myersiella microps* | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | Our data; Haddad et al. 2013; Mônico et al. 2016 |
| *Phrynomantis bifasciatus* | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Our data |
| *Phrynomantis microps* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Rödel and Braun 1999; Toledo et al. 2011 |
| *Plethodontohyla tuberata* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Nincheri and Andreone 2002; Toledo et al. 2011 |
| *Rhombophryne laevipes* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Eudeline et al. 2015 |
| *Stereocyclops incrassatus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Guerrero et al. 2010 |
| *Stereocyclops parkeri* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Sazima 1978; Haddad et al. 2013 |
| **Limnodynastidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Adelotus brevis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Hazelwood 1974 |
| *Heleioporus eyrei* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000 |
| *Limnodynastes convexiusculus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Williams et al. 2000 |
| *Limnodynastes dumerilii* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000 |
| *Limnodynastes lignarius* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000 |
| *Limnodynastes tasmaniensis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Williams et al. 2000; Toledo et al. 2011 |
| *Limnodynastes terraereginae* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000 |
| *Neobatrachus pictus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Williams et al. 2000 |
| *Neobatrachus sudelli* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000 |
| *Notaden melanoscaphus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Williams et al. 2000 |
| *Notaden nichollsi* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Williams et al. 2000 |
| *Platyplectrum spenceri* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000 |
| **Myobatrachidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Crinia georgiana* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000; Toledo et al. 2010 |
| *Crinia glauerti* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000; Toledo et al. 2011 |
| *Crinia riparia* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Williams et al. 2000 |
| *Crinia signifera* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000; Jean-Marc Hero 2002 (Photo online) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Geocrinia laevis* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000; Toledo et al. 2010 |
| *Mixophyes fasciolatus* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Williams et al. 2000; Toledo et al. 2010; Toledo et al. 2011 |
| *Mixophyes schevilli* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000; Toledo et al. 2010 |
| *Paracrinia haswelli* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000; Toledo et al. 2011 |
| *Pseudophryne bibronii* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000; Toledo et al. 2010; Toledo et al. 2011 |
| *Pseudophryne semimarmorata* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Our data; Williams et al. 2000; Toledo et al. 2010; Toledo et al. 2011 |
| *Uperoleia altissima* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000 |
| *Uperoleia aspera* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Brodie Jr et al. 1998 |
| *Uperoleia borealis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Brodie Jr et al. 1998 |
| *Uperoleia laevigata* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Torr 1991; Toledo et al. 2011 |
| *Uperoleia lithomoda* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Brodie et al. 1998; Williams et al. 2000 |
| *Uperoleia littlejohni* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Williams et al. 2000 |
| *Uperoleia mjobergii* | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Brodie et al. 1998 |
| *Uperoleia talpa* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Brodie et al. 1998 |
| **Odontophrynidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Macrogenioglottus alipioi* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Our data; Toledo et al. 2011; Haddad et al. 2013; Mira-Mendes et al. 2016 |
| *Odontophrynus americanus* | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | Our data; Laspiur et al. 2010; Toledo et al. 2010; Toledo et al. 2011; Haddad et al. 2013; Leivas et al. 2013; Rolim, 2017 |
| *Odontophrynus carvalhoi* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Bezerra et al. 2010; Toledo et al. 2010; Haddad et al. 2013; Borges-Nojosa et al. 2016 |
| *Odontophrynus cultripes* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Borges-Nojosa et al. 2016 |
| *Odontophrynus maisuma* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Proceratophrys appendiculata* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Sazima 1978; Haddad et al. 2013 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Proceratophrys avelinoi* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Lourenço-de-Moraes and Lourenço-de-Moraes 2012 |
| *Proceratophrys boiei* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Toledo and Zina 2004; Costa et al. 2009; Toledo et al. 2010; Toledo et al. 2011; Haddad et al. 2013 |
| *Proceratophrys brauni* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Proceratophrys cristiceps* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Haddad et al. 2013; Mângia and Garda 2015 |
| *Proceratophrys cururu* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2011; Haddad et al. 2013 |
| *Proceratophrys laticeps* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013 |
| *Proceratophrys melanopogon* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Moura et al. 2010; Toledo et al. 2010; Haddad et al. 2013 |
| *Proceratophrys moehringi* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Weygoldt 1986 |
| *Proceratophrys paviotii* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Our data |
| *Proceratophrys renalis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Haddad et al. 2013; Peixoto et al. 2013 |
| *Proceratophrys schirchi* | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Our data; Mônico et al. 2017 |
| **Pelobatidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Pelobates fuscus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Labler et al. 1968 |
| *Pelobates syriacus* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Jablonski and Balej 2014 |
| **Pipidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Pipa carvalhoi* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Pefaur and Cardoso 1992; Haddad et al. 2013 |
| *Pipa parva* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Pefaur and Cardoso 1992 |
| *Pipa pipa* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Toledo et al. 2011 |
| *Xenopus laevis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | Hey, 1949; Toledo et al. 2011 |
| **Pyxicephalidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Aubria subsigillata* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | Fabrezi and Emerson 2003; AmphibiaWeb 2019 |
| *Pyxicephalus adspersus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | Cook et al. 2001; Fabrezi and Emerson 2003; Toledo et al. 2011 |
| *Pyxicephalus edulis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | Loveridge 1945 |

**Ranidae**

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Chalcorana chalconota* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Daly et al. 2004 |
| *Clinotarsus curtipes* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Gramapurohit 2001; Toledo et al. 2010 |
| *Glandirana rugosa* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Choi et al. 1999 |
| *Hydrophylax leptoglossa* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Das et al. 2010 |
| *Lithobates areolatus* | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Our data; Altig 1972; Engbrecht et al. 2012 |
| *Lithobates catesbeiana* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Formanowicz and Brodie 1979; Toledo and Haddad 2009; Haddad et al. 2013; Vrcibradic et al. 2017 |
| *Lithobates clamitans* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Davis 1933; Marchisin and Andrews 1978; Formanowicz and Brodie 1979; Toledo et al. 2011 |
| *Lithobates palustris* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | Marchinsin and Anderson 1978; Formanowicz and Brodie 1979; Grant 2001; Toledo et al. 2011 |
| *Lithobates pipiens* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Davis 1933; Boice and Williams 1971; Marchinsin and Anderson 1978; Blomquist and Hunter Jr. 2007; Toledo et al. 2011 |
| *Lithobates septentrionalis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | AmphibiaWeb 2019; Toledo et al. 2011 |
| *Lithobates sylvaticus* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Formanowicz and Brodie 1979; McCallum et al. 2003; Blomquist and Hunter Jr. 2007; Toledo et al. 2011 |
| *Odorrana hosii* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Daly et al. 2004 |
| *Pelophylax hispanicus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Mori et al. 2013; Andreas and Nöllert 2009 (Photo online) |
| *Pelophylax nigromaculatus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Choi et al. 1999 |
| *Pulchrana signata* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Daly et al. 2004 |
| *Rana boylii* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Camp 1917 |
| *Rana capito* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Grant 2001; Means 2004 |
| *Rana dalmatina* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Stojanov 2005 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Rana draytonii* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Wilkinson, 2006 |
| *Rana macrocnemis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Carretero et al. 2011 |
| *Rana muscosa* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Stebbins 1985; Toledo et al. 2011 |
| *Rana pretiosa* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Leonard et al. 1996 |
| *Rana temporaria* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Davies 1968 |
| *Sylvirana nigrovittata* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Shahrudin 2015 |
| **Rhacophoridae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Gracixalus carinensis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | Noble 1931 |
| *Nyctixalus pictum* | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Das et al. 2004 |
| *Polypedates leucomystax* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Shahrudin 2016; Macát and Jablonsky 2018 |
| *Rhacophorus dennysi* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | McCay 2001 |
| *Rhacophorus feae* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Daly et al. 2004; Duong and Rowley 2010; Vinh et al. 2013 |
| *Rhacophorus malabaricus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Mishra 2017 |
| *Rhacophorus margaritifer* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Streicher et al. 2011 |
| *Rhacophorus nigropalmatus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Emerson and Koehl 1990 |
| *Rhacophorus pardalis* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Emerson and Koehl 1990; Macát et al. 2015 |
| *Theloderma asperum* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Annandale 1912; Jablonski and Hegner 2015 |
| **Rhinophrynidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Rhinophrynus dorsalis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Our data |
| **Scaphiopodidae** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Scaphiopus holbrookii* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Marchisin and Andrews 1978; Livo et al. 1997; Maier 2005; Toledo et al. 2011 |
| *Spea bombifrons* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bragg 1945 |
| *Spea hammondii* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Waye and Shewchuk 1995; Toledo et al. 2011 |
| *Spea intermontana* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Waye and Shewchuk 1995; Toledo et al. 2011; AmphibiaWeb, 2019 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Spea multiplicata* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Livo et al. 1997; Toledo et al. 2011 |

**Apêndice 2.** Atributos funcionais de anuros pós-metamórficos**.**

| | Atributos funcionais | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Tamanho corporal** | **Habitat** | | | **Período de atividade** | | **Hábito** | | | | **Referências** |
| **Taxon** | **(cm)** | **Área aberta** | **Florestal** | **Generalista** | **Diurno** | **Noturno** | **Fossorial** | **Terrestre** | **Aquático** | **Arbóreo** | |
| **Alsodidae** | | | | | | | | | | | |
| *Eupsophus emiliopugini* | NA | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Arthroleptidae** | | | | | | | | | | | |
| *Leptopelis rufus* | 87 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Batrachylidae** | | | | | | | | | | | |
| *Atelognathus praebasalticus* | NA | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Bombinatoridae** | | | | | | | | | | | |
| *Barbourula busuangensis* | 85.3 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Bombina bombina* | 50 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Bombina maxima* | 77 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | Huang et al. 2013; Oliveira et al. 2017 |
| *Bombina orientalis* | 47 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Bombina variegata* | 50 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Brachycephalidae** | | | | | | | | | | | |
| *Brachycephalus alipioi* | 16.2 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Brachycephalus ephippium* | 19.7 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Brachycephalus ferruginus* | 14.5 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Brachycephalus garbeanus* | 18.6 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Brachycephalus guarani* | 13.4 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | Clemente-Carvalho et al. 2012; Haddad et al. 2013 |
| *Brachycephalus hermogenesi* | 15 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Brachycephalus margaritatus* | NA | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Brachycephalus nodoterga* | 13.4 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Brachycephalus pernix* | 15.8 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Brachycephalus pitanga* | 14 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Brachycephalus pombali* | 15.3 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |

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|---|---|---|---|---|---|---|---|---|---|---|
| *Brachycephalus toby* | 13.9 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Brachycephalus tridactylus* | NA | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Brachycephalus vertebralis* | 15.1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Ischnocnema abdita* | 16.8 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | Canedo and Pimenta, 2010; Haddad et al. 2013; Observação pessoal |
| *Ischnocnema epipeda* | NA | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ischnocnema erythromera* | NA | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Ischnocnema guentheri* | 40 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ischnocnema henselii* | NA | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ischnocnema juipoca* | 26.26 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Ischnocnema oea* | NA | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Ischnocnema parva* | 25.5 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Ischnocnema verrucosa* | 24 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| **Brevicipitidae** | | | | | | | | | | | |
| *Callulina kreffti* | 47 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Bufonidae** | | | | | | | | | | | |
| *Amazophrynella bokermanni* | NA | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Rodrigues and Azevedo-Ramos 2004; AmphibiaWeb 2018 |
| *Amazophrynella minuta* | 23 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | AmphibiaWeb 2018 |
| *Anaxyrus americanus* | 111 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Anaxyrus boreas* | 125 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Anaxyrus canorus* | 69 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Anaxyrus exsul* | 71 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Anaxyrus fowleri* | 95 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Anaxyrus hemiophrys* | 83 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017 |
| *Anaxyrus houstonensis* | 79 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Anaxyrus quercicus* | 33 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Anaxyrus terrestris* | 116.3 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Anaxyrus woodhousii* | 127 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ansonia inthanon* | 25.2 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017 |
| *Atelopus pulcher* | 35.1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Atelopus spumarius* | 39.2 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| *Atelopus zeteki* | 63 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Bufo bufo* | 150 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Bufo gargarizans* | 134 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Bufo japonicus* | 176 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017 |
| *Bufotes viridis* | 120 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Dendrophryniscus berthalutzae* | 24 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Dendrophryniscus brevipollicatus* | 25 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Dendrophryniscus carvalhoi* | 19 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Campos et al. 2017; Oliveira et al. 2017 |
| *Dendrophryniscus leucomystax* | NA | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Dendrophryniscus proboscideus* | NA | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Duttaphrynus melanostictus* | 160 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Duttaphrynus stomaticus* | 73.7 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Epidalea calamita* | 100 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Frostius erythrophthalmus* | 25.6 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Frostius pernambucensis* | NA | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Incilius alvarius* | 165 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Incilius luetkenii* | 107 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Incilius occidentalis* | 86 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Incilius valliceps* | 125 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017 |
| *Ingerophrynus divergens* | 55 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ingerophrynus parvus* | 50 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Leptophryne borbonica* | 40 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Melanophryniscus admirabilis* | 40.8 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Melanophryniscus alipioi* | 25.7 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Melanophryniscus atroluteus* | 28 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Melanophryniscus cambaraensis* | NA | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Melanophryniscus cupreuscapularis* | 25.8 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Melanophryniscus devincenzii* | 29 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Melanophryniscus dorsalis* | 27 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Melanophryniscus krauczuki* | 24.2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Melanophryniscus macrogranulosus* | NA | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Melanophryniscus montevidensis* | 28 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |

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|---|---|---|---|---|---|---|---|---|---|---|
| *Melanophryniscus moreirae* | 30 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Melanophryniscus orejasmirandai* | 32 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017 |
| *Melanophryniscus pachyrhynus* | NA | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017 |
| *Melanophryniscus rubriventris* | 45 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Melanophryniscus setiba* | 16 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | Peloso et al. 2011; Haddad et al. 2013 |
| *Melanophryniscus simplex* | NA | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Melanophryniscus spectrabilis* | NA | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Melanophryniscus stelzneri* | 30 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Melanophryniscus tumifrons* | NA | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Melanophryniscus vilavelhensis* | 17.2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Oreophrynella nigra* | NA | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Oreophrynella quelchii* | 21.5 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Oreophrynella vasquezi* | NA | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Osornophryne percrassa* | 30 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Peltophryne empusa* | 76 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Peltophryne lemur* | 120 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Phrynoidis asper* | 140 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rentapia hosii* | 98 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rhaebo guttatus* | 140 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rhaebo haematiticus* | 111.3 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rhinella abei* | 83.9 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Rhinella achavali* | NA | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Rhinella arenarum* | 115.5 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rhinella castaneotica* | 50.5 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rhinella crucifer* | 130 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Rhinella dorbignyi* | 70 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Rhinella fernandezae* | 76 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Rhinella gildae* | NA | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Vaz-Silva et al. 2015 |
| *Rhinella granulosa* | 90 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Rhinella henseli* | 63.9 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Rhinella hoogmoedi* | 42 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Rhinella horribilis* | 129.95 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | AmphibiaWeb 2018 |
| *Rhinella humboldti* | NA | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rhinella icterica* | 190 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| *Rhinella jimi* | NA | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Rhinella limensis* | NA | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rhinella major* | NA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA |
| *Rhinella margaritifera* | 74 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rhinella marina* | 241 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rhinella ocellata* | 53 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017 |
| *Rhinella ornata* | 84.29 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Rhinella proboscidea* | 55 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Lima et al. 2005; Oliveira et al. 2017 |
| *Rhinella pygmaea* | NA | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Rhinella rubescens* | 130 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rhinella diptycha* | 250 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Sclerophrys camerunensis* | NA | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Sclerophrys regularis* | 130 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Calyptocephalellidae** | | | | | | | | | | | |
| *Calyptocephalella gayi* | NA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | Oliveira et al. 2017 |
| **Centrolenidae** | | | | | | | | | | | |
| *Centrolene geckoideum* | 74.5 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Centrolene quindianum* | 26.6 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | Oliveira et al. 2017 |
| *Centrolene savagei* | 23.9 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Hyalinobatrachium colymbiphyllum* | 29 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Hyalinobatrachium valerioi* | 26 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Nymphargus grandisonae* | 30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Vitreorana uranoscopa* | 25.8 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| **Ceratobatrachidae** | | | | | | | | | | | |
| *Cornufer guentheri* | 85 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Ceratophryidae** | | | | | | | | | | | |
| *Ceratophrys aurita* | 149 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Ceratophrys cornuta* | 120 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ceratophrys cranwelli* | 158 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | Oliveira et al. 2017 |
| *Ceratophrys joazeirensis* | 105 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Ceratophrys ornata* | 112.4 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | Oliveira et al. 2017 |
| *Lepidobatrachus asper* | NA | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Lepidobatrachus laevis* | 120.5 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | Oliveira et al. 2017 |
| **Craugastoridae** | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| *Craugastor augusti* | 95 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Craugastor bransfordii* | 30 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Craugastor fitzingeri* | 53 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Craugastor megacephalus* | 70 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Craugastor mimus* | 58 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Craugastor noblei* | 66 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Eleutherodactylus bilineata* | NA | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Euparkerella brasiliensis* | 20 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Euparkerella cochranae* | 20 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Euparkerella tridactyla* | 20 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Haddadus binotatus* | 63.8 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Holoaden bradei* | 48 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Holoaden luederwaldti* | 48 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Holoaden pholeter* | 48 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Pristimantis altamazonicus* | 34 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pristimantis conspicillatus* | 49 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pristimantis diadematus* | 108 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pristimantis fenestratus* | 55 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | Lima et al. 2005; Oliveira et al. 2017 |
| *Pristimantis paulodutrai* | NA | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Pristimantis ramagii* | 30 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Pristimantis skydmainos* | 30.4 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pristimantis vinhai* | NA | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Strabomantis biporcatus* | 100 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Cycloramphidae** | | | | | | | | | | | |
| *Cycloramphus acangatan* | 48.1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Cycloramphus boraceiensis* | 59 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Cycloramphus brasiliensis* | 77.8 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Cycloramphus dubius* | 60.3 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Cycloramphus eleutherodactylus* | 58.3 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Cycloramphus lutzorum* | 58 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Thoropa miliaris* | 78 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Thoropa taophora* | 102.1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Zachaenus carvalhoi* | 37 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Zachaenus parvulus* | 29.6 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| **Aromobatidae** | | | | | | | | | | | |
| *Allobates femoralis* | 36 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Lima et al. 2005; Oliveira et al. 2017 |
| *Allobates flaviventris* | 21.1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Melo-Sampaio et al. 2013 |
| *Allobates hodli* | 28.1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017 |
| *Allobates olfersioides* | 19 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Allobates subfolionidificans* | 18.7 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Lima et al. 2007; Oliveira et al. 2017 |
| *Allobates trilineatus* | 19 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Anomaloglossus beebei* | 18.7 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017 |
| *Aromobates nocturnus* | 62 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Dendrobatidae** | | | | | | | | | | | |
| *Adelphobates castaneoticus* | 22.7 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Adelphobates galactonotus* | 40.5 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Adelphobates quinquevittatus* | 17.3 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ameerega bilinguis* | 22.6 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ameerega flavopicta* | 30.5 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ameerega hahneli* | 23 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ameerega picta* | 24.4 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | Oliveira et al. 2017 |
| *Ameerega trivittata* | 49.5 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Andinobates minutus* | 15.5 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Dendrobates auratus* | 42 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Dendrobates leucomelas* | 37.5 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Dendrobates tinctorius* | 50 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Epipedobates anthonyi* | 26.5 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Epipedobates boulengeri* | 21.8 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Epipedobates tricolor* | 26.5 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Oophaga granulifera* | 22 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Oophaga histrionica* | 38 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Oophaga pumilio* | 25 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Oophaga speciosa* | 31 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Phyllobates aurotaenia* | 34 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Phyllobates bicolor* | 42.7 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Phyllobates lugubris* | 24 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Phyllobates terribilis* | 43.2 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Phyllobates vittatus* | 31 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |

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|---|---|---|---|---|---|---|---|---|---|---|
| *Ranitomeya sirensis* | 19.9 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ranitomeya toraro* | NA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA |
| *Ranitomeya vanzolinii* | 19.9 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ranitomeya ventrimaculata* | 18 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Dicroglossidae** | | | | | | | | | | | |
| *Hoplobatrachus tigerinus* | 178 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017 |
| *Limnonectes blythii* | 96.8 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Sphaerotheca breviceps* | 63 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Eleutherodactylidae** | | | | | | | | | | | |
| *Adelophryne glandulata* | 31.1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | Lourenço-de-Moraes et al. 2014; Observação pessoal |
| *Adelophryne mucronatus* | NA | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Eleutherodactylus atkinsi* | 43 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Eleutherodactylus coqui* | 52 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Eleutherodactylus emiliae* | 27 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Eleutherodactylus nitidus* | 35 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Eleutherodactylus planirostris* | 36 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017 |
| **Hemiphractidae** | | | | | | | | | | | |
| *Fritziana ohausi* | 34.7 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Gastrotheca albolineata* | 60 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Gastrotheca fissipes* | 68 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Gastrotheca helenae* | 66 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Gastrotheca megacephala* | 99 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | Izecksohn et al. 2009; Haddad et al. 2013 |
| *Gastrotheca microdiscus* | 49 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Gastrotheca recava* | NA | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Haddad et al. 2013 |
| *Hemiphractus fasciatus* | 68.7 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Hemiphractus johnsoni* | 77.2 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Hemiphractus scutatus* | 81 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Stefania woodleyi* | 61 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Hemisotidae** | | | | | | | | | | | |
| *Hemisus guineensis* | 53 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Hemisus marmoratus* | 55 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Hylidae** | | | | | | | | | | | |
| *Acris blanchardi* | 38 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| *Acris crepitans* | 38 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Acris gryllus* | 32 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017 |
| *Aparasphenodon arapapa* | 60 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Aparasphenodon bokermanni* | 81 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Aparasphenodon brunoi* | 81 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Aparasphenodon pomba* | NA | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Assis et al. 2013 |
| *Aparasphenodon venezolanus* | 58 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Aplastodiscus albofrenatus* | 41.6 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Aplastodiscus albosignatus* | 52 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Aplastodiscus arildae* | 41.6 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Aplastodiscus cavicola* | 37.3 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Aplastodiscus cochranae* | 50.3 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Aplastodiscus ehrhardti* | 39.1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Aplastodiscus eugenioi* | 39 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Aplastodiscus flumineus* | 50.4 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Aplastodiscus ibirapitanga* | 43.4 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Aplastodiscus leucopygius* | 45.1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Aplastodiscus perviridis* | 46.1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Aplastodiscus sibilatus* | 33.6 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Aplastodiscus weygoldti* | 41.7 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Argenteohyla siemersi* | 83 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Boana albomarginatus* | 62 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana albopunctata* | 75 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana beckeri* | 34 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Boana bischoffi* | 69 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana boans* | 132 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Boana caingua* | 38 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana caipora* | 44.3 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana calcarata* | 61 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017 |
| *Boana cinerascens* | 36.2 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Boana crepitans* | 75 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana curupi* | 47 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana exastis* | 99 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana faber* | 104 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |

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|---|---|---|---|---|---|---|---|---|---|---|
| *Boana fasciatus* | 51.2 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Boana geographica* | 75 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Boana guentheri* | 47 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana lanciformis* | 94 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Boana latistriatus* | 51.6 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana leptolineatus* | 39 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana leucocheila* | 81.2 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017 |
| *Boana lundii* | 76 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana marginata* | 51.1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana microderma* | 34 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Boana pardalis* | 75 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana polytaenia* | 41.5 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana pombali* | 65.7 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana prasina* | 55 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana pulchella* | 50 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana punctata* | 41.7 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana raniceps* | 82 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana semilineata* | 52 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Boana wavrini* | 113 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Bokermannohyla ahenea* | 56.7 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Bokermannohyla alvarengai* | 140.9 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Bokermannohyla astartea* | 45 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Bokermannohyla capra* | 64.1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Bokermannohyla caramaschii* | 70 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Bokermannohyla carvalhoi* | 67 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Bokermannohyla circumdata* | 71 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Bokermannohyla diamantina* | 51.7 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Bokermannohyla gouveai* | 69 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Bokermannohyla hylax* | 64 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Bokermannohyla ibitipoca* | 42.7 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Bokermannohyla itapoty* | 50.21 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Bokermannohyla izecksohni* | 50.8 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Bokermannohyla lucianae* | 49.2 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Bokermannohyla luctuosa* | 61.9 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| *Bokermannohyla martinsi* | 64 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Bokermannohyla nanuzae* | 44 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Bokermannohyla oxente* | 47.15 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Corythomantis greeningi* | 86.5 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Dendropsophus acreanus* | 41.7 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Dendropsophus branneri* | 25 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Dendropsophus bromeliaceus* | 18.4 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | Ferreira et al. 2015; Oliveira et al. 2017 |
| *Dendropsophus elegans* | 35.7 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Dendropsophus elianeae* | 26 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Dendropsophus giesleri* | 35.9 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Dendropsophus haddadi* | 24 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Dendropsophus joannae* | 20.6 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Dendropsophus leucophyllatus* | 50 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Dendropsophus microps* | 33 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Dendropsophus minutus* | 27.6 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Dendropsophus nanus* | 23.8 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Dendropsophus parviceps* | 27 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Dendropsophus rhodopeplus* | 29 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Dendropsophus ruschii* | 29 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Dendropsophus schubarti* | 25.5 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Dendropsophus walfordi* | 20 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Dendropsophus werneri* | 23 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Dryophytes arenicolor* | 57.1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017 |
| *Dryophytes chrysoscelis* | 62 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Dryophytes cinereus* | 66 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Dryophytes femoralis* | 44 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Hyla versicolor* | 60 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Hyloscirtus tapichalaca* | 66.5 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Itapotihyla langsdorfii* | 112 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Megastomatohyla mixomaculata* | 36.6 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ololygon albicans* | 46.94 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Ololygon arduous* | 26.2 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Ololygon argyreornata* | 23 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| *Ololygon belloni* | NA | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Ololygon catharinae* | 45.5 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ololygon flavoguttata* | 45.4 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Ololygon hiemalis* | 34.4 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Ololygon kautskyi* | NA | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Ololygon littoralis* | 39.9 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Ololygon obtriangulata* | 39 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Ololygon perpusilla* | 25 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Ololygon v-signata* | 27 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Osteocephalus castaneicola* | 63.3 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Osteocephalus helenae* | 19.5 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Osteocephalus leprieurii* | 64 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Osteocephalus taurinus* | 103.9 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Phyllodytes kautskyi* | 38 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Phyllodytes luteolus* | 23 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Phyllodytes melanomystax* | 26.6 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Phyllodytes tuberculosus* | 26 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Pseudacris crucifer* | 37 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pseudacris ocularis* | 17.5 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pseudacris regilla* | 50 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pseudis cardosoi* | 55.9 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Pseudis platensis* | 57.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | Oliveira et al. 2017 |
| *Scinax alter* | 32 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Scinax cuspidatus* | 32.5 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Scinax fuscomarginatus* | 26.7 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Scinax fuscovarius* | 55.3 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Scinax garbei* | 49.1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Scinax granulatus* | 43 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Scinax hayii* | 53 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Scinax ictericus* | 36.7 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Scinax ruber* | 45 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Scinax similis* | 41 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Scinax x-signatus* | 48 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| *Smilisca baudinii* | 90 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Smilisca fodiens* | 70 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Sphaenorhynchus lacteus* | 48 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Sphaenorhynchus planicola* | 24 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Tlalocohyla smithii* | 30.9 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Trachycephalus atlas* | 107 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Trachycephalus coriaceus* | 66 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Trachycephalus cunauaru* | 84.9 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | AmphibiaWeb 2018 |
| *Trachycephalus dibernardoi* | 84.4 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Trachycephalus imitatrix* | 53 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Trachycephalus lepidus* | 58.7 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Trachycephalus mesophaeus* | 80.5 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Trachycephalus nigromaculatus* | 91.05 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Trachycephalus typhonius* | 105 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Triprion petasatus* | 75.2 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Xenohyla truncata* | 42 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| **Pelodryadidae** | | | | | | | | | | | |
| *Litoria adelaidensis* | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017 |
| *Litoria ewingii* | 50 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Litoria fallax* | 25 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Litoria meiriana* | 23 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Litoria peronii* | 55.7 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Litoria rothii* | 55 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Litoria rubella* | 35 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Litoria watjulumensis* | 75 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ranoidea alboguttata* | 65 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ranoidea australis* | 100 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ranoidea cultripes* | 50 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ranoidea longipes* | 45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ranoidea novaehollandiae* | 100 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ranoidea aurea* | 93.9 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ranoidea caerulea* | 100 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ranoidea dahlii* | 70 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ranoidea genimaculata* | 85 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| *Ranoidea moorei* | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017 |
| *Ranoidea raniformis* | 90 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ranoidea spenceri* | 55 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ranoidea splendida* | 106 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017 |
| **Phyllomedusidae** | | | | | | | | | | | |
| *Agalychnis dacnicolor* | 103.6 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Hylomantis aspera* | NA | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Hylomantis granulosa* | NA | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Phasmahyla cochranae* | 45.15 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Phasmahyla exilis* | 34.5 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Phasmahyla guttata* | 45 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Phasmahyla jandaia* | 32 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Phasmahyla spectrabilis* | 48.6 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Phasmahyla timbo* | 35.8 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Phrynomedusa marginata* | 31 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Phyllomedusa bahiana* | 85 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Phyllomedusa bicolor* | 135 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Phyllomedusa burmeisteri* | 79 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Phyllomedusa camba* | 84 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Phyllomedusa distincta* | 70 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Phyllomedusa iheringii* | 75 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Phyllomedusa palliata* | 62.3 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Phyllomedusa sauvagii* | 96.6 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Phyllomedusa tetraploidea* | 69.4 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Phyllomedusa vaillantii* | 84 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Lima et al. 2005; Oliveira et al. 2017 |
| *Phyllomedusa venusta* | 97.7 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pithecopus azurea* | 44.4 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pithecopus centralis* | 42 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pithecopus hypochondrialis* | 46 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pithecopus nordestina* | 43.7 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Pithecopus rohdei* | 36 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| **Hylodidae** | | | | | | | | | | | |
| *Hylodes cardosoi* | 46.5 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Hylodes perplicatus* | 45.1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |

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|---|---|---|---|---|---|---|---|---|---|---|
| *Megaelosia goeldii* | 121 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Megaelosia massarti* | 123.9 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| **Hyperoliidae** | | | | | | | | | | | |
| *Acanthixalus spinosus* | 38.3 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Kassina cochranae* | 42 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Kassina fusca* | 41 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Kassina keithae* | 43 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Kassina kuvangensis* | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017 |
| *Kassina lamottei* | 46 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Kassina maculosa* | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017 |
| *Kassina senegalensis* | 52 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Phlyctimantis boulengeri* | 59 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Phlyctimantis maculata* | 68 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017 |
| *Phlyctimantis verrucosus* | 58 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Semnodactylus wealii* | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | Oliveira et al. 2017 |
| **Leiopelmatidae** | | | | | | | | | | | |
| *Leiopelma archeyi* | 38 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Leiopelma hamiltoni* | 47 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Leiopelma hochstetteri* | 47 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Leptodactylidae** | | | | | | | | | | | |
| *Adenomera hylaedactyla* | 30 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Adenomera marmorata* | 25 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Adenomera thomei* | NA | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Crossodactylodes bokermanni* | 17 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Crossodactylodes izecksohni* | 15 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Edalorhina perezi* | 38 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Engystomops freibergi* | 39 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Engystomops petersi* | 39 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Engystomops pustulosus* | 48.2 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Hydrolaetare schmidti* | 119.4 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Leptodactylus bolivianus* | 120 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Leptodactylus chaquensis* | 82 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Leptodactylus cunicularius* | 46 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Leptodactylus didymus* | 58.6 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| *Leptodactylus flavopictus* | 134.9 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Leptodactylus fragilis* | 43 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Leptodactylus fuscus* | 46 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Leptodactylus griseigularis* | NA | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Leptodactylus insularum* | NA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA |
| *Leptodactylus knudseni* | 165 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Leptodactylus labyrinthicus* | 158.5 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Leptodactylus laticeps* | 113.4 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Leptodactylus latrans* | 120 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Leptodactylus leptodactyloides* | 49 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Leptodactylus macrosternum* | 80 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Leptodactylus marambaiae* | NA | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017 |
| *Leptodactylus mystaceus* | 60 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Leptodactylus mystacinus* | 65 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Leptodactylus notoaktites* | NA | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Leptodactylus pentadactylus* | 185 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Leptodactylus petersii* | 51 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Leptodactylus plaumanni* | 46 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Leptodactylus podicipinus* | 54 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Leptodactylus rhodonotus* | 90 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Leptodactylus savagei* | 164 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Leptodactylus stenodema* | 146 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Leptodactylus troglodytes* | 53.6 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Leptodactylus vastus* | 250 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Leptodactylus viridis* | NA | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Lithodytes lineatus* | 56 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Paratelmatobius cardosoi* | 17.9 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Paratelmatobius lutzii* | 23.3 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Paratelmatobius poecilogaster* | 30.1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Paratelmatobius yepiranga* | 22.1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Physalaemus biligonigerus* | 40 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Physalaemus camacan* | NA | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Physalaemus crombiei* | 25.2 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Physalaemus cuvieri* | 36.5 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |

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|---|---|---|---|---|---|---|---|---|---|---|
| *Physalaemus deimaticus* | 24.4 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Physalaemus erikae* | 27.1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Physalaemus gracilis* | 40 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Physalaemus kroyeri* | 35 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Physalaemus maculiventris* | 25 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Physalaemus nanus* | 20 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Physalaemus nattereri* | 56.4 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Physalaemus olfersii* | 41 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Physalaemus signifer* | 26.72 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Pleurodema bibroni* | NA | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | AmphibiaWeb 2018 |
| *Pleurodema brachyops* | 34.5 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pleurodema bufoninum* | 56 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pleurodema thaul* | 49.7 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pseudopaludicola falcipes* | 18.1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Pseudopaludicola mystacalis* | 18.9 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pseudopaludicola saltica* | 22 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Scythrophrys sawayae* | 16.71 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| **Mantellidae** | | | | | | | | | | | |
| *Boophis albilabris* | 93 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Mantella laevigata* | 30 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Megophryidae** | | | | | | | | | | | |
| *Megophrys carinense* | 118.4 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Megophrys nasuta* | 160 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Leptobrachium hasseltii* | 77.2 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Leptobrachium hendricksoni* | 64.4 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Leptobrachium smithi* | 78 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Microhylidae** | | | | | | | | | | | |
| *Arcovomer passarelli* | 25.6 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Chiasmocleis bassleri* | 29.9 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Chiasmocleis capixaba* | 20.2 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Chiasmocleis schubarti* | 34.5 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Chiasmocleis ventrimaculata* | 34 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Ctenophryne geayi* | 54 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Dyscophus antongilii* | 110 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |

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|---|---|---|---|---|---|---|---|---|---|---|
| *Dyscophus guineti* | 112.4 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Elachistocleis bicolor* | 43 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Elachistocleis cesarii* | 42.7 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Elachistocleis erythrogaster* | 37.6 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Elachistocleis ovalis* | 43.8 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Elachistocleis piauiensis* | 34 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Gastrophryne carolinensis* | 38 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Glyphoglossus guttulata* | 50 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Glyphoglossus molossus* | 50 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Hamptophryne boliviana* | 44 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Hypopachus barberi* | 30 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Hypopachus variolosus* | 53 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Kalophrynus interlineatus* | 47.7 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Kalophrynus pleurostigma* | 34.5 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Kaloula pulchra* | 70 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Melanobatrachus indicus* | 34 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Microhyla berdmorei* | 45.6 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Myersiella microps* | 40 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Phrynomantis bifasciatus* | 75 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Phrynomantis microps* | 62 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Plethodontohyla tuberata* | NA | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | AmphibiaWeb 2018 |
| *Rhombophryne laevipes* | 47 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | Nussbaum et al. 2008; AmphibiaWeb 2018 |
| *Stereocyclops incrassatus* | 57.8 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Stereocyclops parkeri* | NA | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017 |
| **Limnodynastidae** | | | | | | | | | | | |
| *Adelotus brevis* | 45 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Heleioporus eyrei* | 66 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Limnodynastes convexiusculus* | 61 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Limnodynastes dumerilii* | 70 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Limnodynastes lignarius* | 62 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Limnodynastes tasmaniensis* | 50.5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017 |
| *Limnodynastes terraereginae* | 76 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Neobatrachus pictus* | 50 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Neobatrachus sudelli* | 40 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| *Notaden melanoscaphus* | 55 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Notaden nichollsi* | 60 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Platyplectrum spenceri* | 50 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Myobatrachidae** | | | | | | | | | | | |
| *Crinia georgiana* | 45 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Crinia glauerti* | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Crinia riparia* | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017 |
| *Crinia signifera* | 32 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017 |
| *Geocrinia laevis* | 35 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Mixophyes fasciolatus* | 97 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Mixophyes schevilli* | 90 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Paracrinia haswelli* | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pseudophryne bibronii* | 36 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pseudophryne semimarmorata* | 30 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Uperoleia altissima* | 25 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Uperoleia aspera* | 34 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Uperoleia borealis* | 25 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Uperoleia laevigata* | 32 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Uperoleia lithomoda* | 25 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Uperoleia littlejohni* | 30 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Uperoleia mjobergii* | 25 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Uperoleia talpa* | 30 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Odontophrynidae** | | | | | | | | | | | |
| *Macrogenioglottus alipioi* | 113.8 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Haddad et al. 2013; Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Odontophrynus americanus* | 51 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Odontophrynus carvalhoi* | 70 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Odontophrynus cultripes* | 70 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017 |
| *Odontophrynus maisuma* | 43.6 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Proceratophrys appendiculata* | 63.2 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Proceratophrys avelinoi* | 36.5 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Proceratophrys boiei* | 74.3 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Proceratophrys brauni* | 39.8 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Proceratophrys cristiceps* | 50.2 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |

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|---|---|---|---|---|---|---|---|---|---|---|
| *Proceratophrys cururu* | 53.9 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Proceratophrys laticeps* | 82.7 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Proceratophrys melanopogon* | 65.8 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Proceratophrys moehringi* | 63.6 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; Observação pessoal |
| *Proceratophrys paviotii* | 56.6 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Proceratophrys renalis* | 71.9 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Proceratophrys schirchi* | NA | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| **Pelobatidae** | | | | | | | | | | | |
| *Pelobates fuscus* | 80 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pelobates syriacus* | 90 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Pipidae** | | | | | | | | | | | |
| *Pipa carvalhoi* | 68 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Pipa parva* | 44 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | Oliveira et al. 2017 |
| *Pipa pipa* | 171 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017 |
| *Xenopus laevis* | 147 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Pyxicephalidae** | | | | | | | | | | | |
| *Aubria subsigillata* | 95 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pyxicephalus adspersus* | 236 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pyxicephalus edulis* | 140 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Ranidae** | | | | | | | | | | | |
| *Chalcorana chalconota* | 79 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Clinotarsus curtipes* | 74 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Glandirana rugosa* | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017 |
| *Hydrophylax leptoglossa* | 56.06 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Lithobates areolatus* | 110 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Lithobates catesbeiana* | 203 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | Haddad et al. 2013; Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Lithobates clamitans* | 87 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Lithobates palustris* | 87 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Lithobates pipiens* | 165 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Lithobates septentrionalis* | 76 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Oliveira et al. 2017 |
| *Lithobates sylvaticus* | 83 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Odorrana hosii* | 100 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pelophylax hispanicus* | NA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| *Pelophylax nigromaculatus* | 90.8 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Pulchrana signata* | 57.18 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rana boylii* | 85 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017 |
| *Rana capito* | 113 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rana dalmatina* | 95 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rana draytonii* | 90 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rana macrocnemis* | 79 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rana muscosa* | 83 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rana pretiosa* | 100 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rana temporaria* | 110 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Sylvirana nigrovittata* | 70 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Rhacophoridae** | | | | | | | | | | | |
| *Gracixalus carinensis* | NA | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | AmphibiaWeb 2018 |
| *Polypedates leucomystax* | 80 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | Frith 1977; Oliveira et al. 2017 |
| *Rhacophorus dennysi* | 128.2 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rhacophorus feae* | 111 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rhacophorus malabaricus* | 78 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rhacophorus margaritifer* | 60 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Rhacophorus nigropalmatus* | 97.7 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | Berry 1975; Oliveira et al. 2017 |
| *Rhacophorus pardalis* | 70 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Theloderma asperum* | 34.5 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Nyctixalus pictum* | 35 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Rhinophrynidae** | | | | | | | | | | | |
| *Rhinophrynus dorsalis* | 89 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| **Scaphiopodidae** | | | | | | | | | | | |
| *Scaphiopus holbrookii* | 71 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Spea bombifrons* | 64 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Spea hammondii* | 61 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Spea intermontana* | 64 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |
| *Spea multiplicata* | 64 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | Oliveira et al. 2017; AmphibiaWeb 2018 |